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**Phase I Archaeological and Historical Resources
Investigations for the Red River of the North Ring Levee
Project, Pembina and Walsh Counties, North Dakota**

by

**Barbara Biggs
Kenneth L. Brown
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APR 11 1984
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**A Cultural Resources Project Conducted for the St. Paul
District, U.S. Army Corps of Engineers:
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April 1984

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Abstract

During the fall of 1982 the University of South Dakota Archaeology Laboratory entered into contractual agreement with the St. Paul District Corps of Engineers to conduct a Phase I cultural resources survey of the Red River Ring Levee Project in Pembina and Walsh counties, North Dakota. The cultural resource investigations consisted of a Phase I, 15 percent, stratified, random sample of 314 farmsteads which may have ring levees constructed around their perimeters. A pedestrian reconnaissance was conducted with shovel testing where necessary, and literature and records searches were undertaken.

Field reconnaissance resulted in recording 12 new sites and one significant site lead. The sites contain six prehistoric and seven historic components. Two prehistoric find spots, consisting of an isolated artifact at each, were also recorded. The prehistoric components are attributed to late prehistoric occupation of the area. Temporally diagnostic ceramics and projectile points indicate Woodland, such as Late Woodland Blackduck, associations. The historic components represent one fort (New Fort Pembina, 32PB45), one townsite (Acton, 32WA7), two log houses (32PB46, 32WA6), and three late 19th and early 20th century farmstead components. The site lead is for a fur trading post (Roy's Post).

Inferences are made concerning prehistoric and historic settlement patterns. Site locations are associated with specific soil types and topographic features. Recommendations are made concerning Phase II and Phase III cultural resource investigations in the project area. Recommendations for mitigation of future adverse impacts upon the projected cultural resources are developed, including cost estimates.



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Management Summary

During the fall of 1982 the University of South Dakota Archaeology Laboratory entered into contractual agreement with the St. Paul District Corps of Engineers to conduct a Phase I cultural resources investigation of the Red River Ring Levee Project, Pembina and Walsh counties, North Dakota. Field work was conducted in May, 1983. The project entailed conducting a 15 percent, stratified, random sample survey of 314 farmsteads. In addition, a literature and records search was conducted.

The literature and records search was both intensive and extensive. The pedestrian reconnaissance of lands adjacent to 47 farmsteads was intensive. Records were examined at the North Dakota State Historical Society, Minnesota Historical Society, and the Pembina and Walsh county courthouses at Cavalier and Grafton, respectively. Libraries used include: the North Dakota State Historical Society (Bismarck), the Minnesota Historical Society (St. Paul), the Carnegie Regional Library in Grafton, the I.D. Weeks Library on the campus of the University of South Dakota (Vermillion), and Watson Library on the campus of the University of Kansas (Lawrence). Other sources used include: the Kittson County Enterprise in Hallock, Minnesota; the Pembina State Museum and Park at Pembina, the Pembina County Museum at Cavalier, the Pembina County Historical Society, the Walsh County Historical Society, the Manitoba Museum of Man and Nature in Winnipeg, Manitoba, Canada, and the U.S. General Land Office survey maps and records which were available at the North Dakota Water Commission Office in Bismarck. Twenty local informants were interviewed because of their knowledge of prehistory and history within the project area. People interviewed include: Ervin Schumacker, Herbert Stewart, Kenny Gardner, Louise Hoenke, Edythe Christenson, Alvin and Violet Warner, Katherine Grube, Jenny Turner, William Sturtaugson, Adolard DeFoe, Richard Oakes, Jim Kotchman, William Altendorf, John Rolczynski, Dominic Duray, Frank Schiller, Walter Gerszewski, Alma Ness, and Frank L. Ebertowski. Three local artifact collectors, Clarence Walski, Allan Kirkeby, and Salvin Popowski, were contacted and their collections were examined.

The 15 percent, stratified, random sample of 314 farmsteads was made by dividing the project area into three major physiographic-vegetation areas: (1) the Red River environs; (2) the major tributary environs; and (3) the flat lands. Farmsteads located within 0.5 miles (0.4 kilometers) of the Red River or one of its major tributaries were placed within their respective stratified sample. Farmstead numbers were placed in a well-agitated canister and a 15 percent sample of each of the three stratified areas was drawn from the canister. Thirteen farmsteads were drawn from the Red River environs, 12 farmsteads were drawn from the tributary environs, and 22 farmsteads were drawn from the flat lands.

Therefore, a total of 47 farmsteads were randomly selected for intensive survey.

Field work consisted of spacing a team of archaeologists approximately 15 to 20 meters apart and traversing the lands adjacent to the farmsteads. Shovel tests were dug at 15 to 20 meter intervals in areas where vegetation cover was 25 percent or more. The field reconnaissance of the 47 farmsteads resulted in recording six sites. Interviews with local informants resulted in recording an additional six sites and one significant site lead. The 13 sites (including the site lead) contain six prehistoric and eight historic components. Two prehistoric find spots, consisting of isolated finds, were also recorded. The prehistoric components are attributed to late prehistoric American Indian occupation of the area. Temporally diagnostic ceramics and projectile points indicate Woodland, such as Late Woodland Blackduck, associations. The historic components represent one fort (New Fort Pembina, 32PB45), one townsite (Acton, 32WA7), two log houses (32PB46, 32WA6), and three late 19th and early 20th century farmsteads. The site lead is for Roy's Post, an early fur trading post located along the Red River.

Examination of all recorded sites in Pembina and Walsh counties indicates there are correlations between site locations, soil types, and topographic features. Sites are most frequently associated with four soil types: (1) Embden fine sandy loam (EmA, EmB); (2) Fairdale silty clay loam (FaA, FaB); (3) Wahpeton silty clay (WaA, WaB); and (4) Hecla loamy sand (H1A, H1B). However, a total of 45 soil types are represented by all of the sites.

Prehistoric sites are most frequently associated with soils having none-to-slight and severe campsite impediments. Sites also occur on soils with moderate and moderate-to-severe campsite impediments. Sites associated with soils with moderate-to-severe and severe impediments were probably seasonally occupied by nomadic groups of hunters and gatherers. These site locations would have been uninhabitable during seasons with high precipitation.

Historic sites are most frequently associated with soils having severe campsite impediments. Sites also occur uniformly on soils with none-to-slight, moderate, and moderate-to-severe impediments. This phenomenon may be explained by the fact that the earliest Euro-American settlers were not familiar with the local environment and initially built residences in flood prone areas. These areas were also wooded, similar to the eastern woodland environment from which many of the first Euro-American settlers had come. After having lived in the area for a number of years, settlers became familiar with the environment and began residing in more suitable areas.

Known sites are most frequently associated with two of five topographic features in Pembina and Walsh counties. The five topographic features are: (1) the Red River environs; (2) the major tributary environs; (3) the flat lands; (4) the bluff tops; and (5) the old beaches of Glacial Lake Agassiz. Known sites are most frequently associated with the Red River and its major tributaries.

On the basis of site frequencies recorded during the present project, it is expected that a total of approximately 39 to 42 sites will be found associated with the 314 farmsteads. It is expected that 13 sites will be found associated with farmsteads located adjacent to the Red River, 26 sites will be found with farmsteads located along major tributaries, and probably less than three sites will be found associated with farmsteads located on the flat lands. Therefore, it is recommended that Phase II and Phase III cultural resource investigations focus, primarily, upon the farmsteads located adjacent to the Red River and its major tributaries. Further sample survey may be warranted for farmsteads located on the flat lands.

Four procedures for Phase II and Phase III cultural resource investigations are recommended: (1) a windshield survey; (2) a pedestrian reconnaissance; (3) a test excavation program; and (4) an avoidance/contiguous excavation program.

If the Corps of Engineers has not previously determined which farmsteads are abandoned or already have their own ring levees prior to the Phase II investigations, it is recommended that a windshield survey of all farmsteads be conducted within the project area. The purpose of the windshield survey is to record the presence of inhabited farm houses, the occurrence of significant standing structures, and to record which farmsteads already have ring levees. It is assumed that abandoned houses, graineries, non-existent (destroyed) farmsteads, and residences with ring levees will not have ring levees constructed by the Corps of Engineers and, therefore, will not require further cultural resource investigation. If the Corps of Engineers has already acquired this information, the windshield survey will only be conducted to locate significant standing structures. It is estimated the windshield survey will require approximately seven to eight days for an historical architect to conduct at a cost of \$4,000 to \$5,000.

It is recommended that the Phase II pedestrian reconnaissance consist of a 100 percent, intensive survey of lands adjacent to all farmsteads located within 0.5 miles (0.4 kilometers) of the Red River and its major tributaries. A 25 to 30 percent random sample survey of farmsteads located on the flat lands may be desirable. It is estimated that the Phase II pedestrian reconnaissance will cost \$20,000 to \$25,000.

It is recommended that Phase II test excavations be conducted at potentially significant prehistoric sites and selected historic sites. It is suggested that test excavations consist of manual excavation of a sufficient number of 1 x 1 meter pits to determine the depth, function, and time of occupation at each site and to acquire a representative sample of artifacts. It is estimated that Phase II test excavations may cost \$35,000 to \$40,000.

Avoidance/contiguous excavation is recommended for significant prehistoric and historic sites where avoidance is not possible. Contiguous excavation would consist of maximum data recovery through manual excavation of contiguous 1 x 1 meter pits. Maximum data recovery would obtain sufficient data to determine the function and time of occupation of the sites and to acquire information about subsistence patterns, architectural structures, and paleo-environments. It is estimated that three sites in the project area may warrant contiguous excavation. Phase III contiguous excavations may cost an estimated \$100,000 to \$150,000. Avoidance would reduce this sum considerably.

In summary, the Phase I cultural resources investigation, consisting of a 15 percent, stratified, random sample of 314 farmsteads within the Red River Ring Levee Project yielded six new sites and information provided by local informants yielded an additional six sites and one significant site lead outside the 15 percent sample area. The 12 sites and one site lead contain potentially significant prehistoric and historic data. It is expected, based upon the six sites recorded while conducting the 15 percent survey sample, that 39 to 42 sites will be found by an intensive, 100 percent survey of lands adjacent to all farmsteads located within 0.5 mile (0.4 kilometers) of the Red River and its major tributaries and by a 25 percent random sample survey of farmsteads located on the flat lands. The mitigation of adverse impacts upon these potentially significant resources will require a great amount of time and monies. Evidence suggests the project area has been used extensively by prehistoric and historic peoples. These cultural resources may potentially yield significant information which may help elucidate the culture history of the region. Therefore, these cultural resources need to be protected for future generations.

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Local residents who provided invaluable information include: Ervin Schumacker, Herbert Stewart, Kenny Gardner, Louise Hoenke, Edythe Christenson, Alvin and Violet Warner, Katherine Grube, Jenny Turner, William Sturtaugson, Adolard DeFoe, Richard Oakes, Jim Kotchman, William Altendorf, John Rolczynski, Dominic Duray, Walter Gerszewski, Frank L. Ebertowski, and Alma Ness. Thanks are given to Alissa L. Wiener of the Minnesota Historical Society; Chris Dill and Forrest Daniel of the North Dakota State Historical Society; Tim Berg, editor of the Kittson County Enterprise in Hallock, Minnesota; Frank Schiller of the Minto Historical Society; and special thanks to Michael Michlovic of Moorhead State University. The culmination of the efforts of the authors would not have been as comprehensive without the assistance given by all of the above persons and local landowners.

Chapter 1

Project Background

Introduction

This report presents the findings of archaeological and historical investigations within the Red River of the North Ring Levees Project, Pembina and Walsh counties, North Dakota (Fig. 1). The Red River of the North Ring Levees project is being performed by the St. Paul District of the Army Corps of Engineers. During the fall of 1982, the University of South Dakota Archaeology Laboratory entered into contractual agreement, Number DACW37-82-M-2131, in assessing the frequency and potential significance of archaeological, historical and architectural resources within the project area.

The sites recorded within the project area in Pembina and Walsh counties are shown on a series of topographic maps. The index map (Fig. 2) shows the position of each of the individual topographic maps and General Land Office (GLO) maps (Figures 12, 13, 16, 17, 19, 20, 22, 24, 25, 27, 28, 29, 30, 35, 36).

The work defined herein is called for in the National Historic Preservation Act of 1966 (P.L. 89-665) as amended by Public Law 93-921; The National Environmental Policy Act of 1969 (P.L. 91-190); and the Archaeological and Historical Preservation Act of 1974 (P.L. 93-291). The investigations provide documentation evidencing compliance with Executive Order 11593, "Protection and Enhancement of the Cultural Environment", as well as all other pertinent Federal regulations. The scope of work for the project (Appendix B) calls for a Phase I cultural resource survey based on a statistically valid sampling design, development of a predictive model for site locations and preparation of a detailed technical report.

The Red River of the North Ring Levee Project

The Army Corps of Engineers is currently studying the feasibility of constructing ring levees around those farmsteads within the Red River of the North floodplain that experience frequent flooding. The present project focuses on 314 farmsteads within the floodplain in Pembina and Walsh counties, northeastern North Dakota (Fig. 1). The project is only in the preliminary planning stage; therefore, the exact location and configuration of the proposed ring levee construction are not known at the present time (Scope of Work, Section 3.03, p.2). However, it is expected that construction will be confined to areas immediately adjacent to the farm buildings and homesteads. Levees are not planned to protect agricultural land from floodings. It is expected that levee construction will make use of any natural levees and high ground where available.

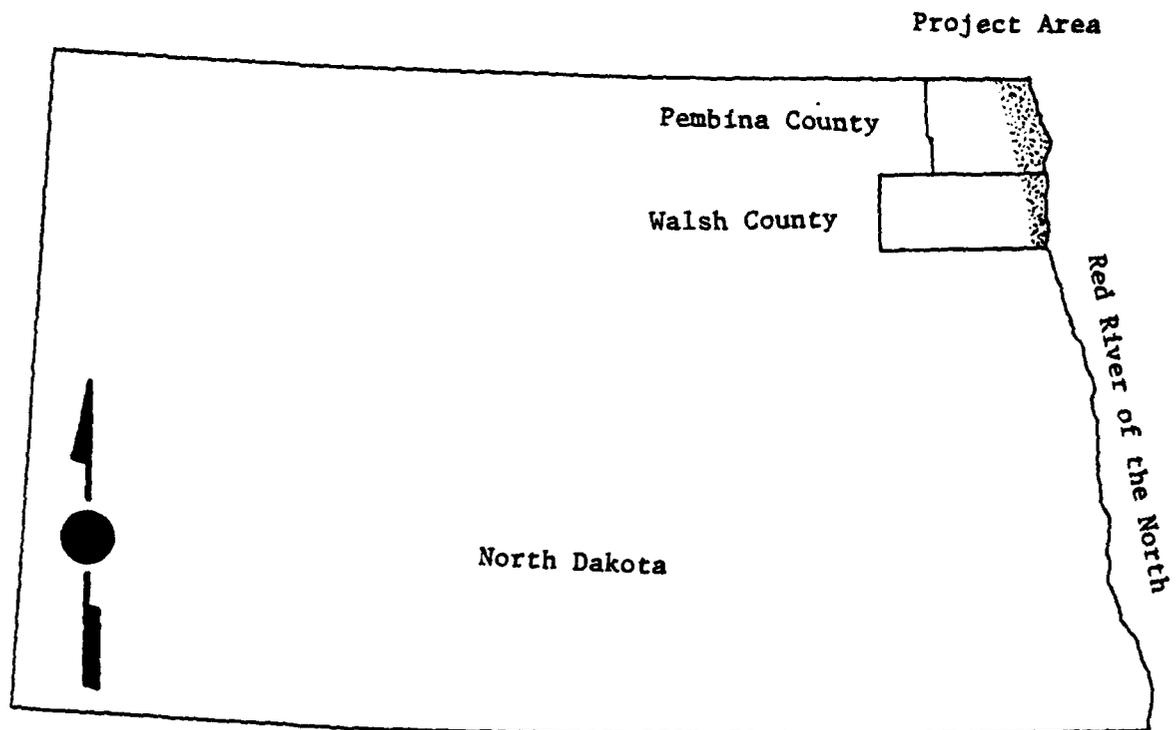
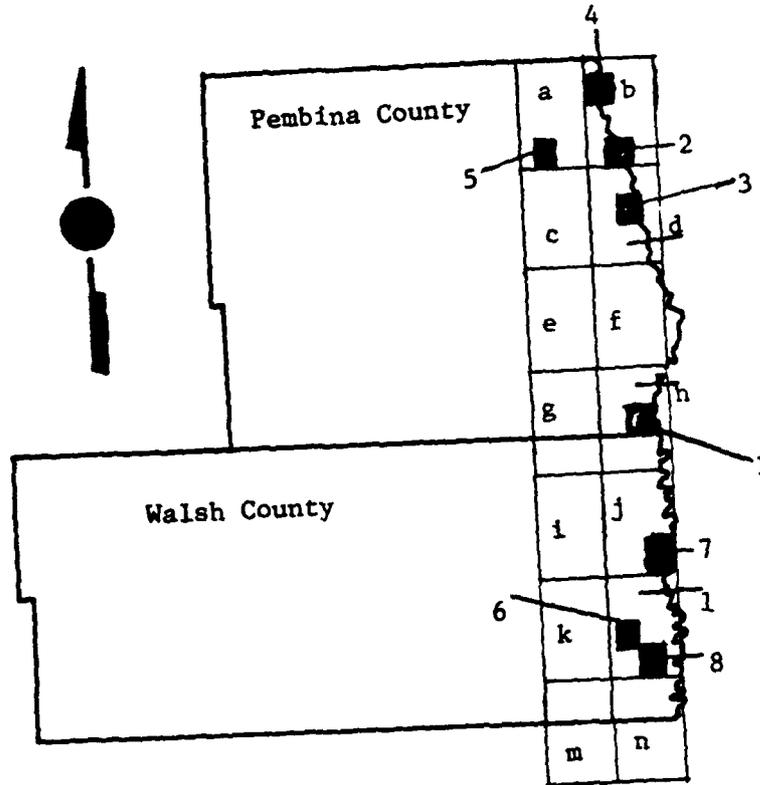


Figure 1. Map showing the location of the project area in North Dakota.



- a - Bathgate NE
- b - Pembina
- c - Bathgate SE
- d - Joliette
- e - Glasston NE
- f - Bowesmont
- g - North Salt Lake
- h - Drayton
- i - Oakwood
- j - Big Woods NW
- k - Minto
- l - Big Woods SW
- m - Ardoch
- n - Oslo

- 1 - Map 1.
- 2 - Map 2.
- 3 - Map 3.
- 4 - Map 4.
- 5 - Map 5.
- 6 - Map 6.
- 7 - Map 7.
- 8 - Map 8.

Figure 2. Index map showing the locations of the individual 7.5 minute topographic maps with site locations.

Previous Research

Several archaeological studies have been conducted within Pembina and Walsh counties, North Dakota. Generally this research has been west of the present project area. The following is a brief summary of those studies for which data are available. Table 1 lists known sites in Pembina and Walsh counties and their assigned cultural affiliations. Figures 3 and 4 show the locations of these sites.

Pembina County

The earliest systematic archaeological research in Pembina County was conducted in 1970 by Creighton T. Shay of the University of Manitoba. The Warner Mound (32PB2) (Fig. 3), a large earthen burial mound located between New Fort Pembina and the city of Pembina, was being destroyed by agricultural practices. An archaeological crew excavated the mound, recovering remains of twelve human burials. The circular mound measured 13 meters in diameter. The burials were of eight females and three males. One individual was too young to be sexed (Wilwand n.d.; Goldenberg 1976).

During 1976, the University of North Dakota Archaeology Laboratory and the St. Paul District Corps of Engineers entered into a contractual agreement authorizing the University of North Dakota to conduct a literature search to provide a list of sites, references, and records pertinent to understanding the prehistory and history of the Pembina River Valley (Schneider 1976:1).

During the summer of 1980, Historical and Archaeological Surveys, Inc., and the St. Paul District Corps of Engineers entered into a contractual agreement, Number DACW37-80-C-0027, authorizing Historical and Archaeological Surveys, Inc., to conduct a comprehensive review of existing records, published and unpublished literature, which were pertinent to the Pembina River Valley in Pembina and Cavalier counties. The objectives of the literature and records review were to identify all the known cultural resources of the study area, to identify biases inherent in the data base, and to recommend research goals for further investigations (Good et al. 1980).

During the summer of 1981, The University of South Dakota Archaeology Laboratory and the St. Paul District Corps of Engineers entered into contractual agreement, Number DACW37-81-C-0040, authorizing The University of South Dakota to conduct a literature and records search and a pedestrian reconnaissance of a 25 percent sample of proposed flood control alternatives in Pembina County and a survey of portions of the Pembina River Valley in Cavalier County. Several sites previously recorded by Ames (1975) in Cavalier County were relocated. The survey yielded 31 newly recorded sites in Pembina County (32PB8 thru 32PB38) (Brown, Brown and Zimmerman 1982) (Fig. 3).

Table 1

Sites Recorded During Previous Researches

<u>Site</u>	<u>Cultural Affiliation</u>	<u>Tested or Excavated</u>
Warner Mound Investigations 1970 (Goldenberg 1976; Wilwand n.d.)		
32PB2	Woodland	Yes
Pembina River Dam and Flood Alternatives Project 1981 (Brown, Brown and Zimmerman 1982)		
32PB8	Archaic, Woodland,	Historic No
32PB9	Prehistoric,	Historic No
32PB10		Historic No
32PB11		Historic No
32PB12		Historic No
32PB13	Prehistoric,	Historic No
32PB14		Historic No
32PB15		Historic No
32PB16		Historic No
32PB17	Prehistoric	No
32PB18	Prehistoric	No
32PB19	Woodland,	Historic No
32PB20	Prehistoric,	Historic No
32PB21	Prehistoric	No
32PB22		Historic No
32PB23	Prehistoric,	Historic No
32PB24	Woodland	No
32PB25	Paleo-Indian,	Historic No
32PB26	Prehistoric,	Historic No
32PB27	Prehistoric,	Historic No
32PB28	Prehistoric	No
32PB29	Woodland	No
32PB30	Prehistoric	No
32PB31	Prehistoric,	Historic No
32PB32	Prehistoric,	Historic No
32PB33		Historic No
32PB34		Historic No
32PB35		Historic No
32PB36	Prehistoric	No
32PB37		Historic No
32PB38		Historic No
Walhalla Alcohol Fuel Plant Facility Survey 1983 (Brown and Brown 1983)		
32PB39	Prehistoric,	No
32PB40	Prehistoric,	Historic No

<u>Site</u>	<u>Cultural Affiliation</u>	<u>Tested or Excavated</u>
Fordville Mound Group Investigations 1883, 1933, 1947, 1949 (Wilford 1941; Hlady 1950; Cole 1968)		

32WA1	Woodland,	Yes
-------	-----------	-----

Forest and Goose Rivers Survey
1967 (Cole 1968)

32WA301	Woodland	No
32WA302	Prehistoric	No
32WA303	Prehistoric	No
32WA304	Prehistoric	No
32WA305	Prehistoric	No
32WA306	Woodland	No
32WA307	Prehistoric	No
32WA308	Woodland	No
32WA309	Prehistoric	No
32WA310	Prehistoric	No
32WA311	Prehistoric	No

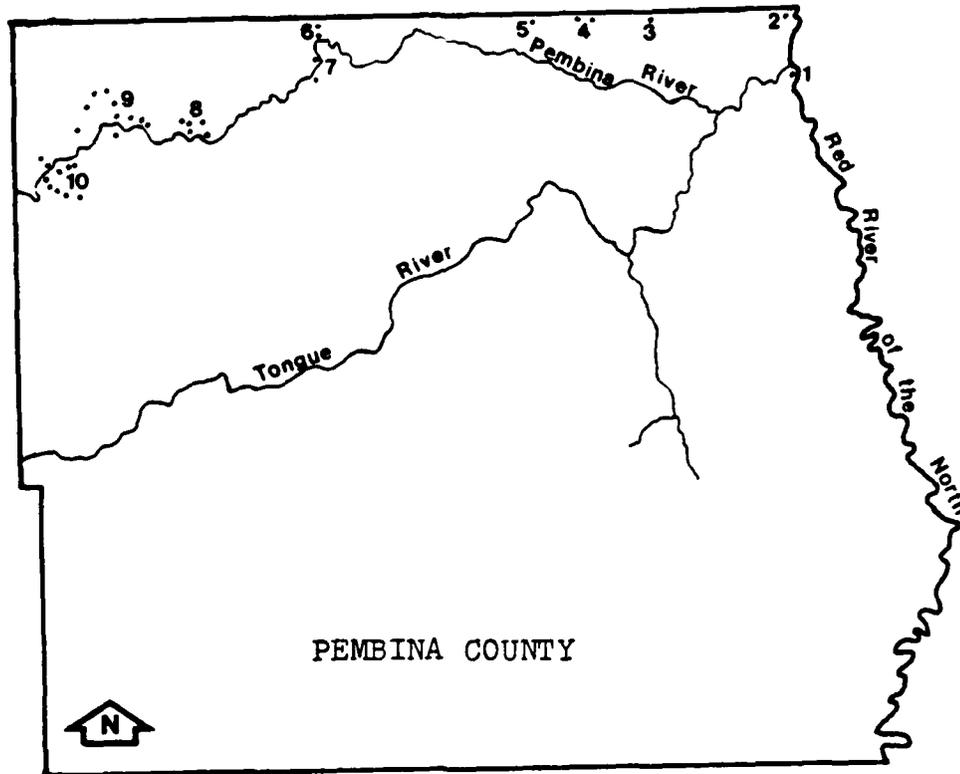
Homme Dam and Reservoir Survey
1974 (Carmichael 1974)

32WA400	Prehistoric	No
32WA401	Woodland	No
32WA402	Woodland	No
32WA403	Prehistoric	No

Park River Survey of 1974
(North Dakota State Site Survey File)

32WA404	Prehistoric	No
32WA405	Prehistoric	No
32WA406	Historic	No

Additional sites have been recorded for Pembina and Walsh counties, but as individual sites as opposed to systematic surveys of a specific area.



- | | | |
|------------------|-------------------|----------------------------|
| 1. 32PB2 | 5. 32PB8 | 9. 32PB15-32PB19, 32PB25, |
| 2. 32PB12 | 6. 32PB31, 32PB32 | 32PB26, 32PB34, 32PB38, |
| 3. 32PB11 | 7. 32PB13, 32PB14 | 32PB101 |
| 4. 32PB9, 32PB10 | 8. 32PB27-32PB30, | 10. 32PB20-32PB24, 32PB33, |
| | 32PB36 | 32PB35, 32PB39, 32PB40, |
| | | 32PB201 |

Fig. 3. Sites found during previous research in Pembina County.

During March 1983, The University of South Dakota Archaeology Laboratory and the Red River Regional Planning Council entered into contractual agreement authorizing the University of South Dakota to conduct a survey of a proposed alcohol fuel plant in Walhalla, North Dakota. Two sites, 32PB39 and 32PB40 (Fig. 3), were recorded while conducting a 100 percent pedestrian reconnaissance of project lands (Brown and Brown 1983).

Walsh County

The earliest reported archaeological investigations in Walsh County were conducted in 1883 by Henry Montgomery (1906), who was working for the University of Toronto Museum. He visited and mapped the Fordville Mound Group (32WA1) (Fig. 4). The Fordville Mound Group contained at least 35 mounds and four artificial ridges. Montgomery visited the site again in 1889 and excavated at least three mounds. He recovered a large quantity of burial goods.

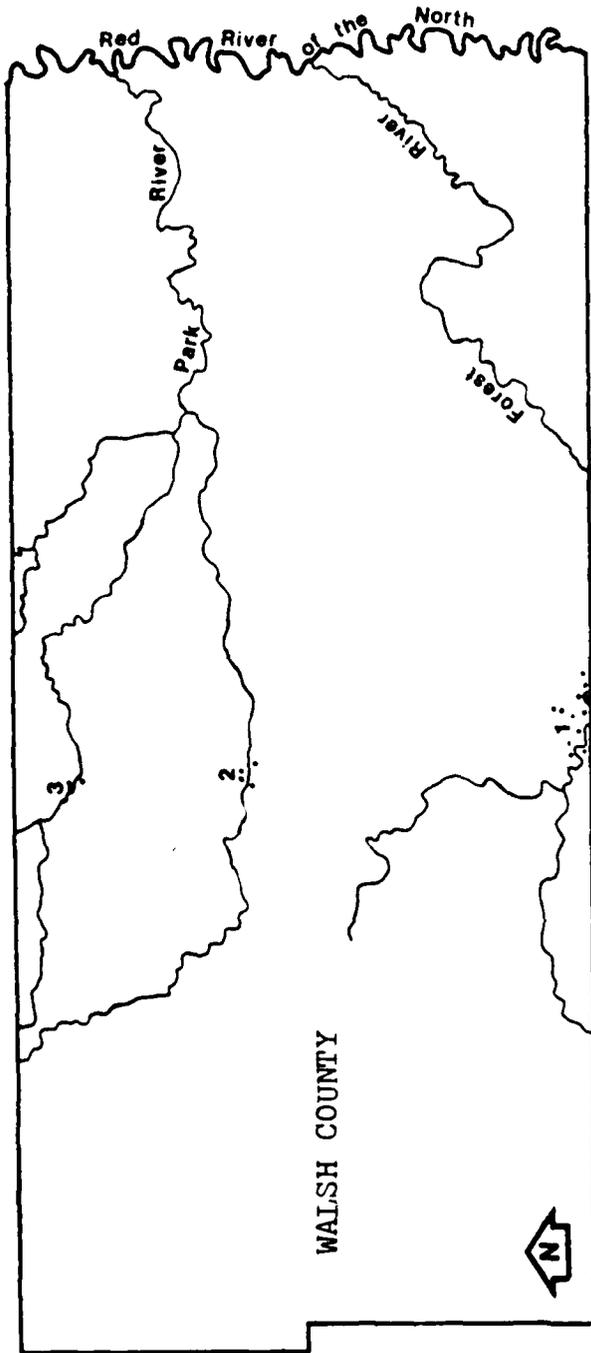
Wilford and Jenks, of the University of Minnesota, excavated two small mounds at the Fordville Mound Group in about 1933, but they found very little cultural remains (Wilford 1941; Hlady 1950:253). Further excavations were conducted at the Fordville Mound Group in 1947 by Hewes and in 1949 by Walter M. Hlady (Hlady 1950; Cole 1968). Few cultural remains were recovered from these excavations.

During the summer of 1967, the University of North Dakota Laboratory of Anthropology conducted a survey along the Forest and Goose rivers (Cole 1968). Eleven sites (32WA301 thru 32WA311) (Fig. 4) were recorded in Walsh County along the Forest River. The work was funded by a research grant, Number 4522-37, from the Faculty Research Grants Program of the University of North Dakota.

The Institute of Ecological Studies at the University of North Dakota conducted a cultural resources survey at the Homme Dam and Reservoir during the summer of 1974. Four archaeological sites were recorded (32WA400 thru 32WA403) (Carmichael 1974) (Fig. 4).

During the fall of 1974, the University of North Dakota Laboratory of Anthropology conducted a small survey along the Middle Branch of the Park River. Three sites (32WA404 thru 32WA406) (Fig. 4), were recorded by Loendorf and Dobesh (North Dakota State Site Survey File).

These previous researches in Pembina and Walsh counties resulted in determination of a long archaeological record of human occupation within northeastern North Dakota. Local artifact collectors have recovered Paleo-Indian, Archaic, Woodland, and historic artifacts.



- 1. 32WA1, 32WA301-32WA311
- 2. 32WA400-32WA403

Fig. 4. Sites found during previous research in Walsh County.

National Register Sites

A search of the North Dakota State Historical Society site files indicated four historic sites in Pembina County and one historic site in Walsh County have been nominated to, and are on, the National Register. The one site in Walsh County is 32WA2, the St. Stanislaus Church Historic District located in the community of Warsaw (T156N, R52W, Sec. 30, SW $\frac{1}{4}$, SW $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 31, NW $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$). The four sites in Pembina County are: (1) 32PB5, the Drayton United Methodist Church located in the town of Drayton (T159N, R51W, Sec. 26, NW $\frac{1}{4}$, NW $\frac{1}{4}$, SE $\frac{1}{4}$); (2) 32PB6, the O'Connor House located in the community of St. Thomas (T159N, R53W, Sec. 2, SE $\frac{1}{4}$, SW $\frac{1}{4}$, SW $\frac{1}{4}$); (3) 32PB7, the Buechner Orth Courthouse located in Cavalier (T161N, R54W, Sec. 4, SW $\frac{1}{4}$, SE $\frac{1}{4}$, SE $\frac{1}{4}$), and (4) 32PB101, the Gingras' House and Trading Post located near Walhalla (T163N, R56W, Sec. 16, E $\frac{1}{4}$, SW $\frac{1}{4}$, SE $\frac{1}{4}$).

Except for the Drayton United Methodist Church (32PB5), none of the above sites are within the vicinity of the ring levee project. The Drayton United Methodist Church (32PB5) is located in downtown Drayton and will not be impacted by levee construction activities.

Level of Effort

Investigations during the project were conducted over a period of two months. Field work was conducted in May 1983, by a crew of three persons. The archaeology team consisted of Kenneth Brown and Marie Brown. The historian for the project was Barbara Biggs. Laboratory analyses of cultural remains recovered during field investigations were done in June 1983. A draft of the report of findings was written and submitted to the Corps of Engineers the last week of June 1983.

The amount of human effort directed toward the completion of this project amounts to greater than 90 person-days (720 person-hours). This level of effort can be divided into the field work, laboratory analysis, and report writing stages. Table 2 shows the hours spent conducting each phase of the project.

Table 2

Level of Effort Toward the Completion of the Project

<u>Field Work</u>	<u>Person-Days</u>	
Archaeological Field Reconnaissance	16	
Historical Literature and Records Searches	9	
	—	
Sub-Total	25	25
<u>Laboratory Work</u>		
Archaeological Analysis	5	
Historical Literature Search	7	
	—	
Sub-Total	12	12
<u>Report Preparation</u>		
Archaeological Writing	20	
Historical Writing	7	
Illustrations and Maps	5	
Typing and Editing	6	
Revising Draft Report	17	
	—	
Sub-Total	55	55
		—
GRAND-TOTAL		92

Chapter 2

Environmental Background

Introduction

The project area is located in Pembina and Walsh counties, North Dakota, within the Red River Valley and Glacial Lake Agassiz Plain. The following is a brief description of these topographic regions. Following the description of the topographic regions, past and present climate, floral and faunal resources of the region are discussed.

Glacial Lake Agassiz

Most of Pembina County and the eastern half of Walsh County are situated within the Glacial Lake Agassiz Plain. About 10,000 B.C., Late Wisconsin age Des Moines lobe ice retreated northward from the Big Stone moraine located at present Lake Traverse. Meltwater was ponded between the ice front and the moraine, forming Glacial Lake Agassiz. The lake eventually covered approximately 518,000 square kilometers (200,000 square miles) (Matsch et al. 1972), including the basin of the Red River and a wide area to the north (Fig.5). It was the most extensive of the glacial Great Lakes and it was larger, when at its maximum extent, than the present Great Lakes combined (Flint 1955:127; Laird 1964; Upham 1882). Lake Agassiz was originally drained to the south by Glacial River Warren. At that time, the outlet was located at present Browns Valley, Minnesota. The lake level fluctuated several times between about 9,000 and 7,250 B.C.. The southern outlet was abandoned about 7,200 B.C. when an outlet was opened through Canadian territory. Beaches were formed by wave action and the lowering of the lake waters. As the great weight of the ice to the north was relieved by melting of the ice and draining of the resultant waters, the underlying land began to rise slowly. As a result, the northern parts of some beaches of Lake Agassiz are more than 61 meters (200 feet) higher than their southern portions (Bray 1977:58). The drainage of Glacial Lake Agassiz left the rich, level expanse of the Red River Valley.

Red River Lowland

The Red River, flowing north into Lake Winnipeg, Manitoba, is the southernmost extension of the Hudson Bay drainage area. It has its main source in Lake Traverse, located on the South Dakota-Minnesota border, via the Bois de Sioux River. "The present-day Red River of the North flows down the axis of the basin that was occupied by Lake Agassiz south of the International Boundary" (Arndt 1977:1). The Red River lowland consists of the flat plain of the bed of Glacial Lake Agassiz and it is bordered by the former beaches of the lake. It is situated mainly in North Dakota and Minnesota and is about 80 kilometers (50 miles) wide. "The valley soils are primarily thick, heavy clays, although sediments along the river itself contain significant

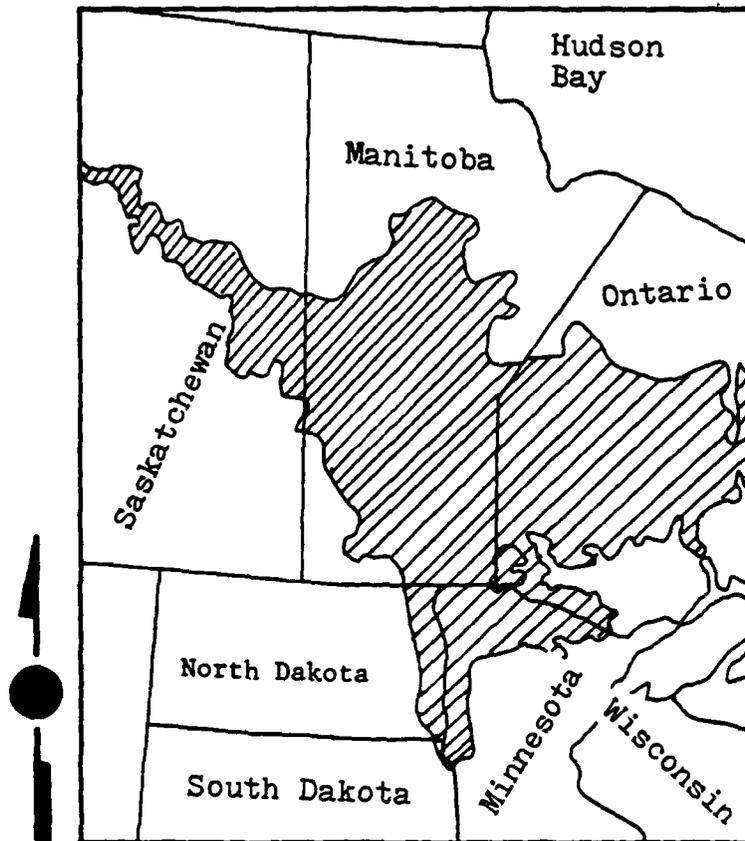


Figure 5.. Map showing the maximum extent of Glacial Lake Agassiz.

proportions of silt" (Michlovic 1983a:24).

Climate

This part of the United States is classified as a continental climate characterized by cold, dry winters and warm, relatively moist summers. Winters are long and cold. The warmest months are April through October. Frontal passages are common throughout the year and rapid fluctuations in temperature can occur over a period of a week. Although the average length of the freeze-free period is approximately 120 days, no time of the year can be considered absolutely free of frost or freezing temperatures. "In the 32 year record at Cavalier, freezing temperatures have occurred in every month except July, in which a low of 30 degrees has been recorded" (Thompson and Hetzler 1977:111).

The average annual precipitation is 50.52 cm (19.89 inches) with most precipitation occurring from May through September. Thunderstorms occur about 30 days per year. Snowfall averages about 94 cm (37 inches), with most occurring from January through March (Thompson and Hetzler 1977:111).

Prevailing winds are northwesterly from November through May and southeasterly from June through October. April is the windiest month, with wind speeds averaging 24 kilometers (15 miles) per hour (Thompson and Hetzler 1977:111-112).

Past Climates

The reconstruction of past environments in a region is complex. One source used by archaeologists is the paleoenvironmental record preserved at sites. This is a reliable method since floral and faunal remains are usually directly related to the prehistoric environment. However, this method is dependent upon the recovery of sensitive environmental indicators, such as pollen or gastropods. No pollen or gastropods have been recovered from any of the prehistoric sites along the Red River in Pembina and Walsh counties but several pollen core and macro plant fossil remains have been recovered from other sites within the region which provide a data base for a detailed reconstruction of past floristic changes in the Lake Agassiz Plain (Shay 1967:231-252).

A second method of environmental reconstruction is based on an analysis of the modern environment of a region. Zawacki and Hausfater's (1969) reconstruction of the vegetation of the Lower Illinois River Valley is an example of these types of studies. Problems are encountered with these types of studies when attempts are made to project modern vegetation patterns into the prehistoric past. The following environmental reconstructions are from two primary sources, Shay (1967) who uses pollen and macrofossil plant remains for vegetational reconstructions and Bryson and Wendland (1967) who use discontinuities in radiocarbon dates to reconstruct

times of climatic change.

It has been postulated that major environmental events occurred at approximately 7190 B.C., 6500 B.C., 4030 B.C., 2730 B.C., 940 B.C., A.D. 260, A.D. 1190, A.D. 1550, and A.D. 1850 (Bryson, Baerreis, and Wendland 1970:63). The dates of significant environmental change were derived by analysis of radiocarbon dates in ten volumes of Radiocarbon (1959-1968).

Selecting only those dates thought to be significant by the person who wrote the sample description, and which also indicated geologic discontinuities, the number of radiocarbon dates to be analyzed was reduced to 620. The frequency with which the 620 radiocarbon dates fell within each two centuries of the last 10,000 years was counted and subjected to a least-square computer fit of the normal distribution to actual radiocarbon dates. Results showed the radiocarbon dates tended to cluster into the nine major times of discontinuity listed above. These major times of discontinuity represent an objective consensus of the times at which major environmental changes occurred (Table 3) (Bryson, Baerreis, and Wendland 1970:53-54).

Analysis of the radiocarbon dates was used to construct a postulated "step-like" succession of post-glacial climatic episodes. This climatic model replaced the simpler model of Ernst Antevs (1955) which postulated a gradual rise in post-glacial temperatures followed by a gradual fall in temperatures.

The climatic model is based partially upon the Blytt-Sernander system widely used in Europe. Climatologists well know that the earth's atmosphere acts as a unit, and a major change in Europe cannot occur without a concurrent change in North America. The results of the changes are usually different. Analysis of radiocarbon dates and bog stratigraphy from Europe correlates with climatic changes in North America, even though the effects of the climatic changes were different. It is assumed that the atmosphere operated in a similar synchronous manner in the past (Bryson and Wendland 1967).

Before describing postulated climatic conditions and floristic compositions for the defined climatic episodes, a few terms and concepts need to be explained. The current climate in the Plains is determined by three major air masses: (1) the Maritime Tropical which originates in the American tropics and the Gulf of Mexico; (2) the Mild Pacific which originates in the Pacific Ocean; and (3) the cold Arctic which originates at the Arctic Circle. It is the interaction of these three air masses which determine temperatures and precipitation of regions within the Plains (Bryson and Wendland 1967).

The warm Maritime Tropical air carries with it a large

Table 3

Past Climatic Episodes Postulated by Various Authors

Beginning Dates for Post Glacial Climatic Episodes

Climatic Episode	Bryson			Composite
	Baerreits Bryson 1965	Bryson Wendland 1967	Baerreits Wendland 1970 Bryson 1974	
Recent	A.D. 1880	A.D. 1850		A.D. 1850
Neo-Boreal	A.D. 1550	A.D. 1550		A.D. 1550
Pacific	II A.D. 1450 I A.D. 1250	A.D. 1450 A.D. 1200	A.D. 1190	A.D. 1450 A.D. 1100
Neo-Atlantic	A.D. 800-900	A.D. 900		A.D. 900
Scandic	A.D. 300-400	A.D. 400	A.D. 260	A.D. 270
Sub-Atlantic	500-600 B.C.	550 B.C.	940 B.C.	810 B.C.
Sub-Boreal	III II I			1620 B.C. 2290 B.C. 3110 B.C.
Atlantic	IV III II I			4030 B.C. 5100 B.C. 5780 B.C. 6500 B.C.
Boreal	II I			7190 B.C. 7700 B.C.
Pre-Boreal			ca. 8550 B.C.	8080 B.C.

quantity of moisture. The cold Arctic air carries little moisture, but when it comes into contact with the warm, moist, Tropical air, precipitation occurs at the juncture of these two opposing air masses. The Mild Pacific air mass can be explained in terms of western topographic features. The western mountains are generally too high to allow the moist, warm Pacific air to cross them. Instead, there are three dominant routes by which the Pacific air crosses the mountains. These three passages are the least difficult routes to cross through the mountains. The southern route is through what is approximately the border of United States and Mexico. This route carries the greatest flow of Pacific air during the winter when the westerlies are far south. This air crosses southern California and Arizona into the southern Plains, known as the Llano Estacado. This air is seasonally warm and very dry as it descends down the east slope of the mountains.

The central air route follows the Columbia River Valley along the border between Oregon and Washington, the Snake River in southern Idaho, and through the basins in Wyoming. This air is mild and dry and drives a wedge between the Arctic and Tropical air masses as it enters the northern and central Plains. This dry air coincides with the most easterly extension of the grasslands into Ohio and Pennsylvania.

The northern Pacific air route has no broad passes through the Canadian mountains through which to pass. Rather, a vertical movement of the air occurs over the mountains. This air is mild and dry (Bryson 1980). The broad Mississippi Valley system allows unimpeded flow for the Arctic and Tropical air masses. The Pacific air drives a wedge, composed of the three varieties of westerlies, between the Arctic and Tropical air masses. The seasonal dominance and interaction of these five air-flows determines the distribution of plants and animals within the Plains and is the determinant of climatic change (Bryson 1980).

The following are brief descriptions of what the climates and floristic characteristics may have been like during each of the major climatic episodes postulated by Bryson and Wendland (1967) and Shay (1967). Past climates cannot be described in detail; however, using modern mean patterns of airstreams and frontal boundaries for the modern distribution of biota, and pollen diagrams and macrofloral data, generalized reconstructions of past climatic and vegetation patterns can be made.

Late Glacial Climatic Pattern (10,000 B.C. to 8,000 B.C.)

The eastern half of North Dakota was covered by the Laurentide ice sheet of the Wisconsin glaciation at 14,000 B.C. The ice sheet was retreating by 10,000 B.C. to 8,500 B.C. in North Dakota. At this time, as the ice sheet retreated, the boreal forest biota became dominant. The boreal forest extended south into most of Nebraska (Bryson and Wendland

1967:282). The southern edge of the Arctic air mass in winter was tangent to the eastern face of the Rocky Mountains, ran south of the Sand Hills of Nebraska and just north of the Dismal Swamp in Virginia. The northern edge of Tropical air in summer would have been tangent to the mountains of eastern Mexico, north to southwestern Kansas and then east through central Pennsylvania. The summer position of the Arctic air mass was probably along the frontal edge of the glacier. The Pacific air mass and westerlies should have been strong in the summer, pushing through northern Illinois, Indiana, Ohio and Pennsylvania.

The winter air entering North Dakota would have been as warm as the present, with air entering from the west and south. Arctic air should have brought less cloud cover and very low relative humidity. The somewhat warmer, drier, clear air in winter and strong westerlies in summer should have made droughts more frequent. At about 10,050 B.C. Lake Agassiz I formed when the Des Moines Lobe in the basin retreated. The pollen record is dominated by *Picea* (spruce) (60 to 80 percent) with varying amounts of trees and shrubs. Herb pollen compose less than 20 percent of the pollen sum. Macrofossils include needles and seeds of *Picea* (spruce) and *Larix laricina* (larch). As the lake water fell, new habitats became available with vegetational trends favoring the expansion of tree vegetation (Shay 1967:243-244).

Pre-Boreal and Boreal Climatic Pattern (8,000 to 6,500 B.C.)

Pollen diagrams indicate an abrupt transition from Late Glacial to post-glacial pollen assemblages, indicating an abrupt change in the circulation patterns of the major air masses. The collapse of the Late Glacial boreal forest biota occurred about 8,500 B.C. and was replaced by grassland in the central and northern Plains and by jack-pine and red pine forests in northeastern Minnesota and Wisconsin. Some Arctic air must have flowed south during the winter, but strong summer westerlies must have prevailed across North America in the mid-latitudes, extending the drier grassland climate far eastward. The grassland biota existed in close proximity to the glacial ice front (Bryson and Wendland 1967:287-290).

Glacial Lake Agassiz had a low water stage that ended approximately 8,000 B.C., and the water level rose to the Campbell strandline until about 7,000 B.C. This time period, 8,000 to 6,500 B.C. is characterized by maxima of *Pinus* (pine) and deciduous tree pollen. The abrupt decline in the frequency of *Picea* (spruce) is accompanied by increases in *Betula* (birch), *Populus* (poplar and aspen), *Ulmus* (elm), *Pinus* (pine), and *Quercus* (oak). Macrofossils of trees and shrubs include *Picea* (spruce) and *Larix* (larch) needles. The interpretation of these differences in *Pinus* (pine), *Betula* (birch) and *Quercus* (oak) pollen is that they are producers of large amounts of pollen which can be dispersed easily over a large area. There is evidence that spruce and larch

persisted in greater abundance in areas adjacent to Lake Agassiz. *Betula* (birch) and *Populus* (poplar and aspen) dominated upland forests. Prairie openings expanded rapidly on lowlands adjacent to the lake at 6,500 B.C. (Shay 1967:245-246). This rapid change from boreal forest to grassland could not have been without significant impact on the Big Game hunters of the region. Exactly what the impacts were are not known at this time, since few Paleo-Indian sites have been systematically investigated in the Red River Valley.

Atlantic Climatic Pattern (6,500 to 3,100 B.C.)

Rapid wasting of the glacier ice occurred after 6,000 B.C. The forests extended northward as fast as the ice disappeared. There is no evidence for a tundra or treeless area between the ice and forest. The Pacific air that characterizes the grassland climate expanded northeastward into central Minnesota and towards the Atlantic Ocean (Bryson and Wendland 1967:291).

Glacial Lake Agassiz completely drained into Hudson Bay before 5,350 B.C. Herb pollen frequencies rise during this period, particularly Gramineae, *Artemisia*, and *Ambrosia*. *Quercus* (oak) is dominant in the eastern areas in present pine-hardwood and deciduous forests. Using modern analogs, this can be interpreted as indicating prairie and oak savanna. Pine and other conifers were not abundant. Macrofossils include *Populus balsamifera* (balsam poplar) and *Fraxinus* (ash) wood. *Ambrosia* pollen reached its maxima at about 5,000 to 6,000 B.C., suggesting a period of maximum aridity. Species of *Ambrosia* and *Chenopodium* possibly colonized the newly exposed Glacial Lake Agassiz lakebed (Shay 1967:247).

It is postulated by some authors that, during the Atlantic Climatic episode, the central and northern Plains were subjected to drought conditions which had a direct impact upon the indigenous human and animal populations. The grasslands probably became dominated by short grasses. Wedel (1964) postulates a virtual abandonment of the short grass Plains by human populations, while Reeves (1973) and Frison (1975) suggest the Plains did support viable human populations. Reeves believes that a focal bison hunting economy prevailed, while Frison postulates a reduction in the human population and adaptation to a more diffuse subsistence economy.

Sub-Boreal Climatic Pattern (3,100 to 800 B.C.)

During the Sub-Boreal climatic episode, there was probably a stronger flow of Arctic air into central Canada which displaced the climate and biota southward (Bryson and Wendland 1967:291-292). During the period from approximately 2,000 B.C. to the present, the Lake Agassiz lowland was dominated by herbaceous pollen. *Quercus* (oak), *Betula* (birch), *Populus* (poplar and aspen) and *Pinus* (pine) expanded to their present frequencies along the edges of lakes and

rivers. Grassland environments dominated the lake lowlands (Shay 1967:247-248; 251).

This environment would have been more favorable for habitation by indigenous hunters and gatherers. Excavations of buried Archaic components at sites 21NR9 (Canning site) and 21NR29 indicate bison was frequently hunted by peoples using the Red River Valley at this time. Ethnographic accounts indicate bison herds were frequent in the region during the fall and winter months taking refuge in the parkland and gallery forests during winter storms. The banks of the Red River would have been a desirable location for establishing prehistoric camps where bison, water and fuel would be abundant. A spring-summer occupation of the river banks would have been less likely because of flooding near the river during these months of high precipitation (Michlovic 1983b:4). Similar cultural patterns probably existed in the Red River Valley until the use of cultigens.

Sub-Atlantic Climatic Pattern (800 B.C. to A.D. 270)

The winters during the Sub-Atlantic climatic episode would have been stormier and wetter, in addition to wetter and cooler summers. This would have been a partial return to Late Glacial climatic conditions (Bryson and Wendland 1967:292). The floristic communities would have been similar to those of the present (Shay 1967:247-248; 251).

Neo-Atlantic Climatic Pattern (A.D. 270 to 1190)

Conditions similar to the Atlantic Climatic episode started about A.D. 350 to 400. Summer rains extended farther into the southwest and corn-farming became practical across most of the Great Plains. This indicates westerlies were weaker, with an expansion of the boreal forest both north and south. A comparison of summer rainfall with strong westerlies indicates the present-day forest-prairie ecotone between northwestern Minnesota and southern Wisconsin was drier during the Neo-Atlantic climatic episode (Bryson and Wendland 1967:294). These drier conditions may have had an adverse impact upon agricultural societies in the Red River Valley.

Pacific Climatic Pattern (A.D. 1190 to 1550)

The westerlies increased at about A.D. 1200. The prairie peninsula extended eastward across Illinois and Indiana. There was reduced Tropical air flow into the northern Plains, reducing summer rainfall. Antelope increased in importance, in relation to bison, in the diet of the hunters of western South and North Dakota. Bison became more important in the diet of the Mill Creek people of northwestern Iowa. It is postulated that some of the drought stricken Upper Republican and Nebraska farming peoples in Nebraska moved northward into South Dakota along the Missouri River. Farming in marginal areas of the western portions of the Plains became impossible (Bryson and Wendland 1967:296).

Neo-Boreal Climatic Pattern (A.D. 1550 to 1850)

The Neo-Boreal is oftentimes referred to as "The Little Ice Age". Summers were cool and autumns were cold in the eastern United States. Glaciers formed as far south as New Mexico in the Rocky Mountains. There was a general deterioration of climate in the eastern United States during the Neo-Boreal climatic episode (Bryson and Wendland 1967:296).

After about 1830 a warming trend began which lasted until about 1850. The climatic data provides substantial evidence for severe and mild winters in the United States between 1604 and 1870. The most severe winters were in the decades 1790 to 1799, 1800 to 1809 and 1830 to 1839. Some ethnographic evidence indicates severe hardships were encountered by indigenous populations in the Northern Plains at this time. Cultivated crops and wild plants did not produce large quantities of food for winter stores and the severe winter temperatures greatly reduced animal populations which provided meat resources. Unstable climatic conditions during the end of the Neo-Boreal climatic episode reduced populations of fur bearing mammals which were trapped for the fur trade. Therefore, indigenous populations which relied upon the fur trade for goods and services would have been adversely effected. The decline of the fur trade began during the mid 19th century. This decline may be partially attributed to unstable climatic conditions (Hastenrath 1972:20-39).

Recent Climatic Pattern (A.D. 1850 to the Present)

During the past 130 years, the climate in the Plains has been characterized by the return of strong westerlies. There has been less precipitation, with the 51 cm (20 inch) annual precipitation cline shifting from eastern Wyoming and Montana in 1915 to central North and South Dakota by 1936 (Wedel 1961:84). The preceding interpretations are an attempt to demonstrate a correlation between past climatic patterns, biota, and human responses to changing environments. The literature on past climates and biotic response to climatic change is voluminous and is only highlighted above.

Fauna

Mammals

The project area is situated within the tall grass prairie. Data on the early historic fauna of the project area furnished by early traveler reports and fur traders indicate that the tall grass prairie sustained a wide variety of animals (Good et al. 1980:9-10). Table 4 lists the most prominent mammals found in the project domain. Several animal species, particularly buffalo (*Bison bison*), pronghorn (*Antilocapra americana*), wolverine (*Gulo luscus*), badger (*Taxidea taxus*), and grizzly bear (*Ursus horribilis*), were once fairly common in the region but have subsequently been exterminated within the project area. Archaeological

excavations at buried Archaic components dating 600 to 1500 B.C (21NR9 and 21NR29) recovered relatively large quantities of bison remains, suggesting the Red River Valley was frequented by herds of bison during Archaic times (Michlovic 1983b).

Amphibians and Reptiles

Several species of toads, frogs, turtles and snakes occur within the project area (Table 5) (Wheeler and Wheeler 1966). There presently is no archaeological evidence that any of these species were utilized by prehistoric peoples. Ethnographic accounts in neighboring areas report the use of amphibians and reptiles by Plains peoples.

Fish

Table 6 lists the most important fish found in the Red River and fish families present in the region. Fish could have provided a reliable food source for prehistoric inhabitants. Fish vertebrae have been recovered from site 21NR11 (Michlovic 1980:161; 1982b:58).

Birds

A large variety of avifauna inhabit the project domain. A large number of these are migratory waterfowl which are seasonal inhabitants. The project domain is within the Mississippi River flyway corridor, which starts on the Manitoba border in central North Dakota and stretches southeastward to the Mississippi River in southeast Iowa and northeast Missouri. From there it extends eastward to the Illinois River and then south to terminate on the gulf coast of Louisiana (Bellrose 1968).

The Mississippi River corridor is used by approximately 2,500,000 dabbling ducks, of which 2,000,000 are mallards, 200,00 are pintails, 125,000 are baldpates, 70,000 are green-winged teals, 50,000 are gadwalls and 20,000 are shovelers. Diving ducks using the corridor start from northwestern Minnesota and lakes Manitoba and Winnipeg in Manitoba. About 6,000 Canada geese use a corridor from southeastern Manitoba to Silver Lake in Rochester, Minnesota. Approximately 400,000 to 450,000 blue and lesser snow geese migrate through the Mississippi flyway to reach coastal Louisiana (Bellrose 1968). Table 7 lists the birds inhabiting the project domain, some only seasonally. Migratory waterfowl were a potential food resource which may have been utilized by the prehistoric inhabitants of the Red River Valley.

Flora

Few early explorer and settler accounts mention the flora of the region in detail. Table 8 lists the woody plants presently found within Pembina and Walsh counties. Many of the plants and trees provide substantial quantities of foodstuff which could have been used by the indigenous human populations.

Table 4

Mammals Indigenous to the Region

<u>Name</u>	<u>Common Name</u>
<i>Sorex cinereus</i>	Masked shrew
<i>Sorex palustris</i>	Water shrew
<i>Sorex arcticus</i>	Arctic shrew
<i>Microsorex hoyi</i>	Pygmy shrew
<i>Blarina brevicauda</i>	Short-tailed shrew
<i>Condylura cristata</i>	Star-nosed mole
<i>Myotis lucifugus</i>	Little brown myotis
<i>Myotis keenii</i>	Keen's myotis
<i>Lasionycteris noctivagans</i>	Silver-haired bat
<i>Eptesicus fuscus</i>	Big brown bat
<i>Lasiurus borealis</i>	Red bat
<i>Lasiurus cinereus</i>	Hoary bat
<i>Sylvilagus floridanus</i>	Eastern cottontail
<i>Lepus americanus</i>	Snowshoe rabbit
<i>Lepus townsendii</i>	White-tailed jackrabbit
<i>Tamias striatus</i>	Eastern chipmunk
<i>Eutamias minimus</i>	Least chipmunk
<i>Marmota monax</i>	Woodchuck
<i>Spermophilus richardsonii</i>	Richardson's ground squirrel
<i>Spermophilus tridecemlineatus</i>	13-lined ground squirrel
<i>Spermophilus franklinii</i>	Franklin's ground squirrel
<i>Sciurus carolinensis</i>	Gray squirrel
<i>Tamiasciurus hudsonicus</i>	Red squirrel
<i>Glaucomys sabrinus</i>	Northern flying squirrel
<i>Thomomys talpoides</i>	Northern pocket gopher
<i>Geomys bursarius</i>	Plains pocket gopher
<i>Castor canadensis</i>	Beaver
<i>Peromyscus maniculatus</i>	Deer mouse
<i>Onychomys leucogaster</i>	Northern grasshopper mouse
<i>Clethrionomys gapperi</i>	Gapper's red-backed mouse
<i>Microtus pennsylvanicus</i>	Meadow vole
<i>Microtus ochrogaster</i>	Prairie vole
<i>Ondatra zibethicus</i>	Muskrat
<i>Synaptomys cooperi</i>	Southern bog lemming
<i>Synaptomys borealis</i>	Northern bog lemming
<i>Zapus hudsonius</i>	Meadow jumping mouse
<i>Zapus princeps</i>	Western jumping mouse
<i>Erethizon dorsatum</i>	Porcupine
<i>Canis latrans</i>	Coyote
<i>Canis lupus</i>	Gray wolf
<i>Vulpes fulva</i>	Red fox
<i>Vulpes velox</i>	Swift fox
<i>Urocyon cinereoargenteus</i>	Gray fox
<i>Ursus americanus</i>	Black bear
<i>Ursus horribilis</i>	Grizzly bear
<i>Procyon lotor</i>	Raccoon
<i>Martes americana</i>	Marten
<i>Martes pennanti</i>	Fisher
<i>Mustela erminea</i>	Ermine

Name

Common Name

<i>Mustela rixosa</i>	Least weasel
<i>Mustela frenata</i>	Long-tailed weasel
<i>Mustela vison</i>	Mink
<i>Gulo luscus</i>	Wolverine
<i>Taxidea taxus</i>	Badger
<i>Mephitis mephitis</i>	Striped skunk
<i>Lutra canadensis</i>	River otter
<i>Felis concolor</i>	Mountain lion
<i>Lynx canadensis</i>	Lynx
<i>Lynx rufus</i>	Bobcat
<i>Cervus canadensis</i>	Wapiti
<i>Odocoileus hemionus</i>	Mule deer
<i>Odocoileus virginianus</i>	White-tailed deer
<i>Alces alces</i>	Moose
<i>Rangifer tarandus</i>	Caribou
<i>Antilocapra americana</i>	Pronghorn
<i>Bison bison</i>	Bison

Table 5

Amphibians and Reptiles in the Project Area

<u>Name</u>	<u>Common Name</u>
Amphibians:	
<i>Necturus maculosus</i>	Mudpuppy
<i>Ambystoma tigrinum</i>	Tiger salamander
<i>Bufo americanus</i>	American toad
<i>Bufo cognatus</i>	Great Plains toad
<i>Bufo hemiophrys</i>	Dakota toad
<i>Hyla versicolor</i>	Gray tree frog
<i>Pseudacris nigrita</i>	Chorus frog
<i>Rana pipiens</i>	Leopard frog
<i>Rana sylvatica</i>	Wood frog
Reptiles:	
<i>Chelydra serpentina</i>	Snapping turtle
<i>Chrysemys picta</i>	Painted turtle
<i>Eumeces septentrionalis</i>	Prairie skink
<i>Storeria occipitomaculata</i>	Red-bellied snake
<i>Thamnophis radix</i>	Plains garter snake
<i>Thamnophis sirtalis</i>	Red-sided garter snake
<i>Opheodrys vernalis</i>	Smooth green snake

Table 6

Most Common Commercial Fish in the Region
and
Fish Families in the Project Area

Most Common Commercial Fish in the Region

<u>Name</u>	<u>Common Name</u>
<i>Esox lucius</i>	Northern pike
<i>Stizostedion canadense</i>	Sauger
<i>Stizostedion vitreum</i>	Walleye
<i>Ictalurus punctatus</i>	Channel catfish
<i>Ictalurus melas</i>	Black bullhead
<i>Ictalurus nebulosus</i>	Brown bullhead
<i>Pomoxis nigromaculatus</i>	Black crappie
<i>Catostomus commersoni</i>	White sucker
<i>Ictiobus cyprinellus</i>	Bigmouth buffalo
<i>Moxostoma macrolepidotus</i>	Shorthead redhorse
<i>Cyprinus carpio</i>	Carp
<i>Cariodes forbesi</i>	Plains quillback

Fish Families in the Project Area

<u>Family</u>	<u>Common Name</u>
Petromyzonidae	Lampreys
Acipenseridae	Sturgeons
Lepisosteidae	Gars
Hiodontidae	Mooneyes
Salmonidae	Trouts
Esocidae	Pikes
Cyprinidae	Minnows, carp
Catostomidae	Suckers
Ictaluridae	North American catfishes
Percopsidae	Troutperch
Gadidae	Cods
Cyprinodontidae	Killifishes, topminnows
Gasterosteidae	Sticklebacks
Cottidae	Sculpins
Percichthyidae	Percichthyids
Centrarchidae	Sunfishes, basses
Percidae	Perch, darters
Sciaenidae	Drums, croakers

The project domain is within the tall and mixed grass prairie biota community which is the ecotone (Odum 1971:157) between the more easterly tall grass prairie and northern deciduous forest and the more westerly short grass plains. The Red River has a deciduous hardwood forest community adjacent to its banks and along portions of its major tributaries. Grasslands occur elsewhere and are dominated by herbs which are composed of two main groups, grasses and forbs, with grasses being dominant.

The grasses are of two or more heights, with tall grasses attaining heights of 50 to 150 cm (20 to 59 inches), and short grasses attaining heights of 5 to 40 cm (2 to 16 inches). The mixed grass prairie contains a mixture of both major grasses. The dominant plants are porcupine grass, prairie dropseed, little bluestem, side-oats grama, Junegrass, western wheatgrass, plains muhly, panic grass, sedge, green needlegrass, needle-and-thread grass, sand dropseed, slender wheatgrass, galleta, and purple three-awn. Forbs include broomweed, scurf-pea, sunflowers, goldenrods, and ragweed.

Effects of drought over a prolonged period of time causes the mixed grasses to be overcome or dominated by short grasses. Excessive precipitation causes the mixed grasses or short grasses to become dominated by the tall grasses. These floral changes, due to changing climatic patterns, are also reflected in the fauna associations (Shelford 1978:334-340).

The deciduous forests and grasslands along the Red River and its major tributaries in northeastern North Dakota can be divided into two major vegetation zones based upon elevation and physiography; (1) the bottomland hardwood forest; and (2) the tall and mixed grass prairie. These vegetation zones parallel the Red River of the North and its major tributaries. A large number of plant species producing a diverse range of food types are available in varying densities throughout the region. Certain areas become optimal for exploitation at different seasons which is reflected by the seasonal availability of species which occur in each vegetation zone (Fig. 6).

Shay (1967) provides a summary of the vegetational history of the Red River Valley. The postulated sequence of dominant floral assemblages determined from pollen analyses consists of *Picea* (spruce) from 10,000 to 8,000 B.C., *Pinus* (pine) and deciduous forests from 8,000 to 6,500 B.C., *Quercus* (oak), Gramineae and Compositae from 6,500 to 2,000 B.C., and *Pinus* (pine), herbs and deciduous forests from 2,000 B.C. to the present. A high frequency of *Ambrosia* pollen at approximately 6,000 to 5,000 B.C. indicates this was a time of maximum aridity in the area. Grasslands remained dominant on the flat lands from about 2,000 B.C. to the present.

Table 7

Birds in the Project Area

<u>Name</u>	<u>Common Name</u>
<i>Charadrius melodus</i>	Piping Plover
<i>Sterna forsteri</i>	Forster's Tern
<i>Catoptrophorus semipalmatus</i>	Willet
<i>Limosa fedoa</i>	Marbled Godwit
<i>Numenius americanus</i>	Long-billed Curlew
<i>Ixobrychus exilis</i>	Least Bittern
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron
<i>Botaurus lentiginosus</i>	American Bittern
<i>Larus pipixcan</i>	Franklin's Gull
<i>Chlidonias nigra</i>	Black Tern
<i>Anas crecca</i>	Green-winged Teal
<i>Anas americana</i>	American Wigeon
<i>Anas clypeata</i>	Northern Shoveler
<i>Oxyura jamaicensis</i>	Ruddy Duck
<i>Anas acuta</i>	Pintail
<i>Fulica americana</i>	American Coot
<i>Anas discors</i>	Blue-winged Teal
<i>Pelecanus erythrorhynchos</i>	White Pelican
<i>Podilymbus podiceps</i>	Pied-billed Grebe
<i>Phalaropus tricolor</i>	Wilson's Phalarope
<i>Recurvirostra americana</i>	American Avocet
<i>Porzana carolina</i>	Sora
<i>Rallus limicola</i>	Virginia Rail
<i>Capella gallinago</i>	Common Snipe
<i>Asio flammeus</i>	Short-eared Owl
<i>Circus cyaneus</i>	Marsh Hawk
<i>Cistothorus platensis</i>	Short-billed Marsh Wren
<i>Cistothorus palustris</i>	Long-billed Marsh Wren
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird
<i>Melospiza georgiana</i>	Swamp Sparrow
<i>Agelaius phoeniceus</i>	Red-winged Blackbird
<i>Ardea herodias</i>	Great Blue Heron
<i>Phalacrocorax auritus</i>	Double-crested Cormorant
<i>Anas platyrhynchos</i>	Mallard
<i>Aythya americana</i>	Redhead
<i>Aythya valisineria</i>	Canvasback
<i>Aix sponsa</i>	Wood Duck
<i>Aythya collaris</i>	Ring-necked Ducks
<i>Aythya affinis</i>	Lesser Scaup
<i>Lophodytes cucullatus</i>	Hooded Merganser
<i>Branta canadensis</i>	Canada Goose
<i>Actitis macularia</i>	Spotted Sandpiper
<i>Haliaeetus leucocephalus</i>	Bald Eagle
<i>Iridoprocne bicolor</i>	Tree Swallow
<i>Stelgidopteryx ruficollis</i>	Rough-winged Swallow
<i>Riparia riparia</i>	Bank Swallow
<i>Megaceryle alcyon</i>	Belted Kingfisher
<i>Bartramia longicauda</i>	Upland Sandpiper
<i>Charadrius vociferus</i>	Killdeer

NameCommon Name

<i>Pedioecetes phasianellus</i>	Sharp-tailed Grouse
<i>Tympanuchus cupido</i>	Greater Prairie Chicken
<i>Perdix perdix</i>	Gray Partridge
<i>Phasianus colchicus</i>	Ringed-necked Pheasant
<i>Chordeiles minor</i>	Common Nighthawk
<i>Athene cunicularia</i>	Burrowing Owl
<i>Nyctea scandiaca</i>	Snowy Owl
<i>Buteo lagopus</i>	Rough-legged Hawk (winter)
<i>Buteo swainsoni</i>	Swainson's Hawk
<i>Falco sparverius</i>	Sparrow Hawk
<i>Hirundo rustica</i>	Barn Swallow
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker
<i>Carduelis tristis</i>	American Goldfinch
<i>Sturnella neglecta</i>	Western Meadowlark
<i>Lanius excubitor</i>	Northern Shrike (winter)
<i>Lanius ludovicianus</i>	Loggerhead Shrike
<i>Tyrannus tyrannus</i>	Eastern Kingbird
<i>Sialia sialis</i>	Eastern Bluebird
<i>Sialia currucoides</i>	Mountain Bluebird
<i>Tyrannus verticalis</i>	Western Kingbird
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird
<i>Chondestes grammacus</i>	Lark Sparrow
<i>Spizella pusilla</i>	Field Sparrow
<i>Spizella pallida</i>	Clay-colored Sparrow
<i>Ammodramus savannarum</i>	Grasshopper Sparrow
<i>Spiza americana</i>	Dickcissel
<i>Plectrophenax nivalis</i>	Snow Bunting
<i>Passerculus sandwichensis</i>	Savannah Sparrow
<i>Calamospiza melanocorys</i>	Lark Bunting
<i>Pooecetes gramineus</i>	Vesper Sparrow
<i>Calcarius ornatus</i>	Chestnut-collared Longspur
<i>Calcarius accornii</i>	McCown's Longspur
<i>Dolichonyx oryzivorus</i>	Bobolink
<i>Eremophila alpestris</i>	Horned Lark
<i>Zenaidura macroura</i>	Mourning Dove
<i>Columba livia</i>	Rock Dove
<i>Progne subis</i>	Purple Martin
<i>Chaetura pelagica</i>	Chimney Swift
<i>Colaptes auratus</i>	Common Flicker
<i>Icterus galbula</i>	Northern Oriole
<i>Turdus migratorius</i>	American Robin
<i>Dumetella carolinensis</i>	Gray Catbird
<i>Junco hyemalis</i>	Dark-eyed Junco
<i>Cyanocitta cristata</i>	Blue Jay
<i>Sayornis phoebe</i>	Eastern Phoebe
<i>Archilochus colubris</i>	Ruby-throated Hummingbird
<i>Troglodytes aedon</i>	House Wren
<i>Toxostoma rufum</i>	Brown Thrasher
<i>Bombycilla cedrorum</i>	Cedar Waxwing
<i>Molothrus ater</i>	Brown-headed Cowbird
<i>Passer domesticus</i>	House Sparrow
<i>Spizella passerina</i>	Chipping Sparrow

NameCommon Name

<i>Melospiza melodia</i>	Song Sparrow
<i>Sturnus vulgaris</i>	Starling
<i>Quiscalus quiscula</i>	Common Grackle
<i>Corvus brachyrhynchos</i>	Common Crow
<i>Dendroica petechia</i>	Yellow Warbler
<i>Geothlypis trichas</i>	Common Yellowthroat
<i>Setophaga ruticilla</i>	American Redstart
<i>Pipilo erythrophthalmus</i>	Rufous-sided Towhee
<i>Carduelis flammae</i>	Common Redpoll (winter)
<i>Passerina amoena</i>	Lazuli Bunting
<i>Passerina cyanea</i>	Indigo Bunting
<i>Empidonax traillii</i>	Willow Flycatcher
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo
<i>Salpinctes obsoletus</i>	Rock Wren
<i>Bonasa umbellus</i>	Ruffed Grouse
<i>Otus asio</i>	Screech Owl
<i>Strix varia</i>	Barred Owl
<i>Aegolius acadicus</i>	Saw-whet Owl
<i>Accipiter cooperii</i>	Cooper's Hawk
<i>Buteo platypterus</i>	Broad-winged Hawk
<i>Buteo jamaicensis</i>	Red-tailed Hawk
<i>Cathartes aura</i>	Turkey Vulture
<i>Picoides pubescens</i>	Downy Woodpecker
<i>Picoides villosus</i>	Hairy Woodpecker
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker
<i>Sitta carolinensis</i>	White-breasted Nuthatch
<i>Certhia familiaris</i>	Brown Creeper
<i>Icterus spurius</i>	Orchard Oriole
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak
<i>Parus atricapillus</i>	Black-capped Chickadee
<i>Vireo olivaceus</i>	Red-eyed Vireo
<i>Vireo gilvus</i>	Warbling Vireo
<i>Empidonax minimus</i>	Least Flycatcher
<i>Contopus virens</i>	Eastern Wood Pewee
<i>Contopus sordidulus</i>	Western Wood Pewee
<i>Myiarchus crinitus</i>	Great Crested Flycatcher
<i>Catharus fuscescens</i>	Veery
<i>Seiurus aurocapillus</i>	Ovenbird
<i>Mniotilta varia</i>	Black-and-white Warbler
<i>Asio otus</i>	Long-eared Owl
<i>Bubo virginianus</i>	Great Horned Owl
<i>Accipiter striatus</i>	Sharp-shinned Hawk
<i>Accipiter gentilis</i>	Goshawk
<i>Sitta canadensis</i>	Red-breasted Nuthatch
<i>Hesperiphona vespertina</i>	Evening Grosbeak
<i>Carpodacus purpureus</i>	Purple Finch
<i>Loxia curvirostra</i>	Red Crossbill
<i>Loxia leucoptera</i>	White-winged Crossbill
<i>Pinicola enucleator</i>	Pine Grosbeak
<i>Regulus satrapa</i>	Golden-crowned Kinglet
<i>Bombycilla garrulus</i>	Bohemian Waxwing
<i>Carduelis pinus</i>	Pine Siskin
<i>Pica pica</i>	Black-billed Magpie

NameCommon Name

<i>Bucephala clangula</i>	Common Goldeneye
<i>Podiceps auritus</i>	Horned Grebe
<i>Falco rusticolus</i>	Gyr Falcon
<i>Grus canadensis</i>	Sandhill Crane
<i>Anas strepera</i>	Gadwall
<i>Coturnicops noveboracensis</i>	Yellow Rail
<i>Amospiza caudacuta</i>	Sharp-tailed Sparrow
<i>Larus delawarensis</i>	Ring-billed Gull
<i>Sterna hirundo</i>	Common Tern
<i>Podiceps grisegena</i>	Red-necked Grebe
<i>Spizella arborea</i>	Tree Sparrow (winter)
<i>Ammodramus bairdii</i>	Baird's Sparrow
<i>Anthus spragueii</i>	Sprague's Pipit
<i>Dendroica pensylvanica</i>	Chestnut-sided Warbler
<i>Oporornis philadelphia</i>	Mourning Warbler
<i>Seiurus noveboracensis</i>	Northern Waterthrush
<i>Strix nebulosa</i>	Great Gray Owl
<i>Surnia ulula</i>	Hawk-Owl
<i>Aegolius funereus</i>	Boreal Owl
<i>Falco columbarius</i>	Merlin ("Pigeon Hawk")
<i>Vireo philadelphicus</i>	Philadelphia Vireo

Table 8

Woody Plants in the Project Area

<u>Name</u>	<u>Common Name</u>
<i>Salix amygdaloides</i>	Wright willow
<i>Salix bebbiana</i>	Long-beaked willow
<i>Salix discolor</i>	Pussy willow
<i>Salix eriocephala</i>	Missouri willow
<i>Salix exigua</i>	Sandbar willow
<i>Salix rigida</i>	Yellow willow
<i>Populus deltoides</i>	Cottonwood
<i>Populus tremuloides</i>	Quaking aspen
<i>Corylus americana</i>	Hazelnut
<i>Quercus macrocarpa</i>	Bur oak
<i>Ulmus americana</i>	American elm
<i>Celtis occidentalis</i>	Hackberry
<i>Menispermum canadense</i>	Moonseed
<i>Ribes americanum</i>	Black currant
<i>Ribes missouriense</i>	Wild gooseberry
<i>Amelanchier alnifolia</i>	June berry
<i>Amelanchier sanguinea</i>	Dwarf june berry
<i>Crataegus succulenta</i>	Hawthorn
<i>Rubus idaeus</i>	Red raspberry
<i>Rosa acicularis</i>	Wild rose
<i>Rosa suffulta</i>	Prairie rose
<i>Rosa blanda</i>	Wild rose
<i>Rosa woodsii</i>	Wild rose
<i>Prunus americana</i>	Wild plum
<i>Prunus virginiana</i>	Choke cherry
<i>Amorpha canescens</i>	Lead plant
<i>Amorpha fruticosa</i>	False indigo
<i>Rhus glabra</i>	Smooth sumac
<i>Toxicodendron radicans</i>	Poison ivy
<i>Celastrus scandens</i>	Bittersweet
<i>Acer negundo</i>	Box elder
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Parthenocissus vitacea</i>	Woodvine
<i>Vitis riparia</i>	Riverbank grape
<i>Tilia americana</i>	Basswood, linden
<i>Elaeagnus angustifolia</i>	Russian olive
<i>Shepherdia argentea</i>	Buffalo berry
<i>Oenothera serrulata</i>	Evening primrose
<i>Cornus stolonifera</i>	Red dogwood
<i>Fraxinus pennsylvanica</i>	Green ash
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Symphoricarpos occidentalis</i>	Wolfberry
<i>Viburnum lentago</i>	Sheepberry, wild raisin
<i>Sambucus canadensis</i>	Elderberry
<i>Juniperus communis</i>	Dwarf juniper
<i>Juniperus horizontalis</i>	Creeping juniper
<i>Salix candida</i>	Hoary willow
<i>Salix lucida</i>	Shining willow
<i>Salix petiolaris</i>	Meadow willow

NameCommon Name

<i>Salix serissima</i>	Autumn willow
<i>Populus balsamifera</i>	Balsam poplar
<i>Corylus cornuta</i>	Beaked hazelnut
<i>Ostrya virginiana</i>	Ironwood
<i>Betula glandulosa</i>	Dwarf birch
<i>Betula papyrifera</i>	White birch
<i>Alnus incana</i>	Alder
<i>Atriplex canescens</i>	Wingscale
<i>Ribes hirtellus</i>	Gooseberry
<i>Ribes triste</i>	Red currant
<i>Spiraea alba</i>	Meadow-sweet
<i>Crataegus chrysoarpa</i>	Hawthorn
<i>Potentilla tridentata</i>	Three-toothed cinquefoil
<i>Rubus pubescens</i>	Creeping Blackberry
<i>Prunus pennsylvanica</i>	Bird cherry
<i>Amorpha nana</i>	Fragrant false indigo
<i>Rhamnus alnifolia</i>	Swamp buckthorn
<i>Elaeagnus commutata</i>	Silverberry
<i>Shepherdia canadensis</i>	Buffaloberry, soapberry
<i>Cornus foemina</i>	Gray dogwood
<i>Arctostaphylos uva-ursi</i>	Bearberry
<i>Fraxinus nigra</i>	Black ash
<i>Lonicera dioica</i>	Wild honeysuckle
<i>Symphoricarpos albus</i>	Snow berry
<i>Viburnum opulus</i>	Highbush cranberry
<i>Viburnum rafinesquianum</i>	Downy arrowwood
<i>Gutierrezia sarothrae</i>	Broom snakeweed
<i>Artemisia cana</i>	Wild sagebrush

The Environment During Field Work

The field work during this project was conducted during the month of May. Most of the lands, approximately 98 percent, were cultivated, with wheat, beans, corn, sunflowers and potatoes being the dominant crops. Localized tree clearing was observed, the removal of trees having been done with the aid of large mechanized equipment. The dozing of deciduous forest along the Red River of the North has greatly disrupted the ground terrain and has had a definite adverse impact upon buried cultural resources.

Summary

The project domain provided the indigenous human populations with a variety of plant and animal resources. Many of the food resources were available seasonally, and should be reflected in their utilization of the region. The region, located in the tall and mixed grass prairie, has undergone several major post-glacial climatic episodes which altered the local floral and faunal resources. These past climatic events undoubtedly influenced the peoples utilizing these resources.

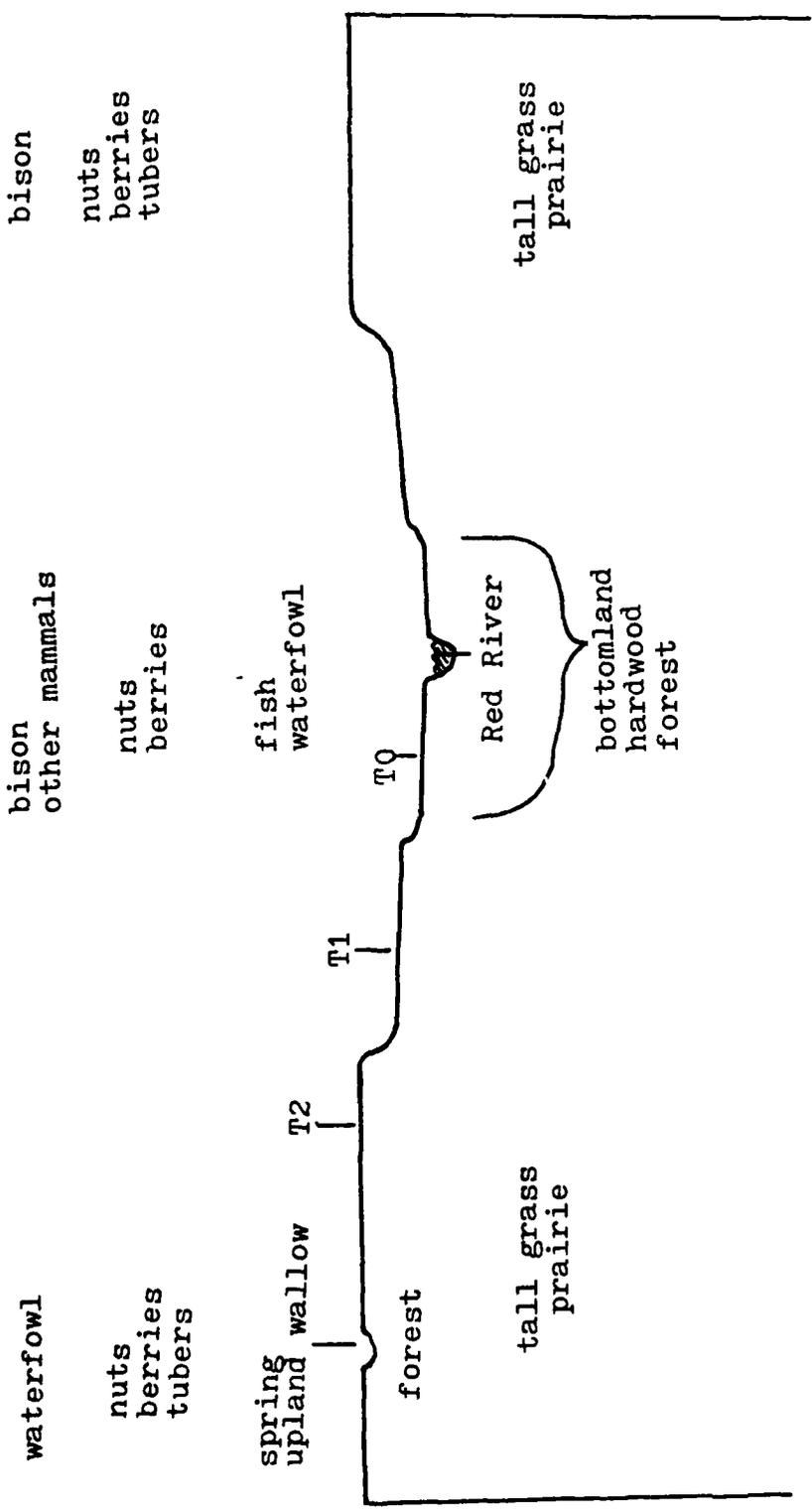


Figure 6. Phytoecographic-substance potential model of the Red River Valley.

Chapter 3

Prehistoric and Historic Overviews

Introduction

The Red River Valley is located within the Plains Indian cultural region defined by Wedel (1961) as the Northeastern Periphery, but this designation is misleading, suggesting that this subarea of the Great Plains was peripheral to important developments occurring on the rest of the Great Plains. Recently, investigations within this subarea have indicated that, in addition to having cultural affiliations with surrounding regions, it was a locus of its own cultural developments as well. As a result, it has been suggested that this subarea should now be referred to as the Northeastern Plains (Anfinson 1982:67; Fox 1982) and this designation has been adopted in the present study. Prehistoric and historic cultural data from this region will be presented to provide an overview of the archaeological manifestations of northeastern North Dakota (Table 9).

Culturally, the Northeastern Plains were probably occupied by band-level hunters and gatherers who shifted residence in response to available food resources and whose sites are characterized by tools indicating specialized activities of short duration and low visibility. Areas of greater topographic relief would have been the most favorable for human occupation. Tool assemblages often lack temporally diagnostic tools. Projectile points and pottery (pottery occurs very late, temporally) provide the most information for assigning temporal placement of site occupation.

Paleo-Indian Period (10,000 B.C. to 5,000 B.C.)

The Paleo-Indian period, which is poorly represented in the Northeastern Plains, consists of three complexes. The earliest is the Llano complex (10,000 B.C. to at least 9,000 B.C.) which is characterized by the fluted Clovis projectile point which has been found in association with now-extinct Pleistocene megafauna, such as mammoth. The methods employed by the nomadic mammoth hunters in killing mammoth can only be conjectured. Once a young, old, or sick animal was separated from the herd, it could have been dispatched by a group of experienced hunters armed with Clovis-tipped spears. Animals may also have been trapped at water holes, in marshes, in broken terrain, or at slippery stream crossings and successfully attacked. There is no indication of the use of poison, pits, fire, or communal drives in the procurement of mammoth (Wedel 1961:59). The meat diet of the mammoth hunters was probably supplemented with nuts, berries and tubers. Due to climatic change and/or overkill, mammoth became extinct and were replaced by bison as the main meat source for prehistoric Plains peoples.

Although most fluted points recovered in North Dakota are concentrated in the western portion of the state, in a

Table 9

Cultural Periods Developed by Various Authors
Who Have Done Research In or Near the Project Area

<u>YBP</u>	<u>MacNeish 1958</u>	<u>Hlady 1970</u>	<u>Syms 1977</u>	<u>Major Point Types</u>
	Wedel 1961			
	Cree			various side,
	Assiniboin			basal, corner
	Yankton		<u>Historic</u>	notched, un-
500	Santee	Selkirk phase	<u>Late period</u>	notched points
1,000	Selkirk focus	<u>Manitoba phase</u>		
	Manitoba focus	Laurel	<u>Middle period</u>	
1,500	<u>Nutimik focus</u>	phase	<u>Early period</u>	Besant
2,000	Anderson		Middle Woodland	Avonlea
	focus			
2,500			<u>Early Woodland</u>	
3,000	<u>Larter</u>	<u>Larter</u>		Pelican Lake
	focus	phase		Hanna
3,500				
4,000	Whiteshell	Whiteshell		Duncan
	focus	phase		McKean
4,500				
5,000				Oxbow
	Oxbow	?		
5,500				
6,000				
6,500				
7,000		Angostura		Pahaska
		complex		side-notched
7,500		Agate		
		Basin complex		
8,000				James Allen
8,500				Angostura
				Cody
9,000				
9,500				Alberta
10,000				Hell Gap
11,000				Agate Basin
				Midland
12,000				Folsom
				Clovis

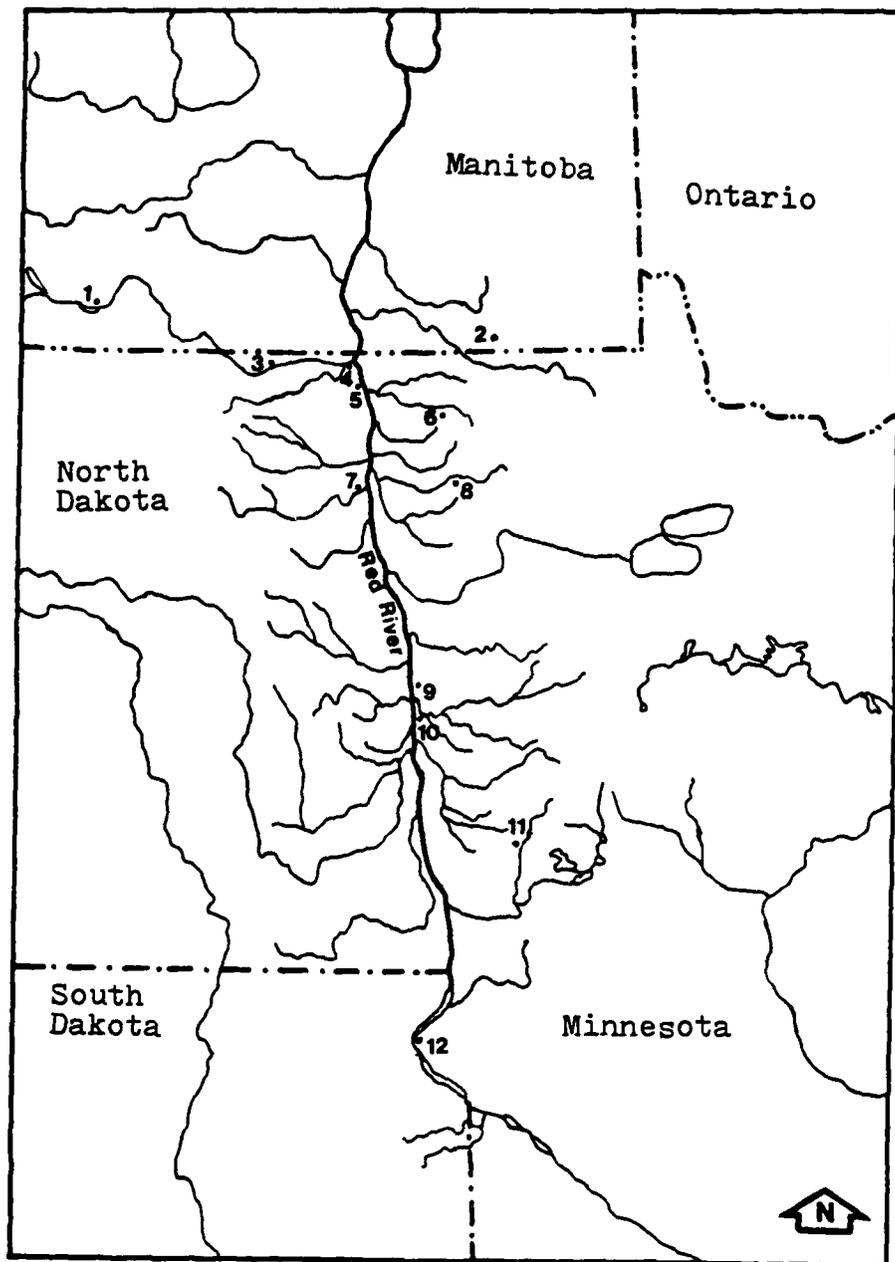
recent article Schneider (1982) incorrectly asserts that no fluted points are found east of the Pembina Escarpment. A Clovis projectile point was recovered from site 32PB25 (Brown et al. 1982:129) (Fig. 7) and is in a private collection. The site is located along the the Pembina River east of the Pembina Escarpment. There are no known Clovis sites within the project area. However, the immediate environs may have supported a mammoth herd during the terminal Pleistocene. The beaches of Glacial lake Agassiz may potentially contain buried Clovis sites.

The second Paleo-Indian complex is the Folsom complex (9,000 B.C. to 8,000 B.C.). Definitions of this complex are based on the temporally diagnostic Folsom and, possibly, Midland projectile point styles and their association with now-extinct forms of bison. Folsom points have been found in southern Manitoba (Pettipas 1970:16). Buried Folsom sites may be present in the Red River Valley.

The third Paleo-Indian complex is the Plano complex (8,000 B.C. to 5,000 B.C.). This complex is defined by the presence of temporally diagnostic Eden, Plainview, Alberta, Hell Gap, Agate Basin, Scottsbluff, Browns Valley, and Angostura projectile point styles and their association with modern bison (*Bison bison*). Plano points are found throughout North Dakota (Schneider 1982:16) and occur in southern Manitoba (Pettipas 1970). Site DhLb-1 (Fig. 7), located in southeastern Manitoba, contains a late Paleo-Indian component which has been radiocarbon dated at 8,000 to 7,500 B.C. (Saylor 1975).

The Browns Valley Man site (21TR5) (Jenks 1934, 1935, 1937) (Fig. 7), located at Browns Valley, Minnesota, near Lake Traverse, a main source of the Red River of the North, has been assigned to the Plano complex. It has been dated to about 6,000 B.C. The site yielded Browns Valley points, found in association with a male skeleton buried in a pit dug into a gravel bar which formed during the Tintah beach stage of Lake Agassiz. The pit fill contained little humus and the earth covering the pit appeared to be undisturbed, suggesting the burial occurred after the outlet channel which drained Lake Agassiz to the south during the Tintah stage ceased to be active but before much soil accumulated on the gravel bar (Johnson 1962:160).

A second very old human skeleton (21OT3) (Fig. 7) has been recovered southeast of the project area near Pelican Rapids in Otter Tail County, Minnesota. The remains are those of a teenaged girl named "Minnesota Man" (Jenks 1932, 1933, 1935, 1937). The skeleton was found almost three meters (10 feet) below ground surface, within the horizontal laminated layers of silt deposited in now-extinct Glacial Lake Pelican. An elk antler tool and a marine shell pendant were also recovered with the skeleton. Controversy surrounds the age of Minnesota Man. Geology and the extreme depth at which the



- | | | |
|---------------|---------------------------|------------------------------------|
| 1. Avery site | 6. Lake Bronson (21KT1) | 11. "Minnesota Man" site (21OT3) |
| 2. DhLb-1 | 7. 32WA8 | 12. Browns Valley Man site (21TR5) |
| 3. 32PB25 | 8. Haarstad Mound (21MA6) | |
| 4. 32PB47 | 9. 21NR29 | |
| 5. 32PB42 | 10. Canning (21NR9) | |

Figure 7. Sites mentioned in the Prehistoric Overview.

remains were recovered suggest an early age. Attempts at radiocarbon dating the remains have been inconclusive (Wilford 1955:130). An Archaic period date was obtained from a carbon sample which was smaller than the minimum amount required for accuracy and which was originally contaminated by shellac (Johnson 1962:160). Based on geology and the extreme depth of the remains, a Paleo-Indian age is accepted for Minnesota Man in the present study.

Bison was the main source of meat for Folsom and Plano peoples, although other species, such as deer, elk, and pronghorn antelope may also have been important. In a recent examination of Paleo-Indian bison procurement practices Nicholson (1982) concludes that the strategies employed consisted of the stalking, ambushing, or small-scale surrounding of bison by small hunting groups. Communal mass-killing of bison accomplished by stampeding a bison herd over a cliff or into a natural entrapment, such as a deep-sided ravine, where the bison were then dispatched, probably did not develop until the Archaic period. Fire may have been employed in the drives. The meat diet of the Paleo-Indian bison hunters was probably supplemented with wild plant foods such as nuts, berries, and tubers.

Plains Archaic Period (5,000 B.C. to 500 B.C.)

During the end of the late Paleo-Indian period a great variety of projectile point styles appear. The Archaic period is broadly characterized by stemmed and side-notched points and by the appearance of ground and pecked stone tools. Archaic projectile points were noted within the collection of a local collector (Clarence Walski) during the present project, but they were found several miles west of the project area.

Archaic peoples continued to follow a nomadic way of life, traveling seasonally to utilize different food resources in various localities (Johnson 1978:9). The subsistence pattern became more diffuse, reflecting a greater exploitation of local environments. It is generally accepted that the major emphasis was still on the procurement of bison, although smaller game animals, fish, and wild plant foods increased in dietary importance from the Paleo-Indian period.

Stone circles are common archaeological phenomena on the northern Great Plains. "Their range extends from just west of the Rocky Mountains to western Minnesota and northwest Iowa, south into Nebraska and north into Saskatchewan and Alberta" (Hovde 1982:33). A number of these stone circles have been assigned to the Archaic period on the basis of projectile point styles and radiocarbon dates (Quigg 1979, 1981:54-60; Mulloy 1954:63; Brassler 1982:314-318; Frison 1978:51; Reeves 1970:161; Larson 1981). These stone circles have been interpreted as having been constructed in conjunction with circular lodges or tipis (Frison 1978:51; Kehoe 1958; Mulloy

1960:1-3), although some may be the remains of corral structures and other forms of animal traps (Malouf 1960:3-5; Moomaw 1960:5-9).

The most fully reported of the Archaic complexes is the McKean-Duncan-Hanna complex (3,000 B.C. to 600 B.C.). There is a concentration of McKean complex sites northwest of the project area on the shores of Rock Lake, in Manitoba, at the headwaters of the Pembina River (Syms 1970:127-130). The campsites are small and were briefly occupied by small groups of nomadic bands of hunters and gatherers relying upon bison hunting as their main subsistence pattern (Joyes 1970).

A later Archaic complex is the Pelican Lake phase (1,000 B.C. to A.D. 1), which occurs over much of the northern Plains. The Pelican Lake phase is represented by large corner-notched projectile points. Pelican Lake components have been reported from sites in southern Manitoba (Reeves 1970; Joyes 1970), northwest of the project area. Campsites are small, indicative of small nomadic bands of hunters and gatherers who concentrated upon hunting bison and gathering wild plant foods.

In addition to manifestations of the Plains Archaic, the Eastern Archaic also appears to be represented in the Red River Valley (Johnson 1964). This is suggested by the recovery of native copper artifacts near the project area. A private collection of artifacts from a cultivated field west of Crookston, Minnesota contains several native copper projectile points (Johnson 1962:162). This site, located southeast of the present study area, is situated fairly close to the Red River.

Recent excavations of two Archaic components in Norman County, Minnesota (Michlovic 1983b, 1984 personal communication), located southeast of the levee project area, have recovered buried, in situ, cultural remains. The two sites, Canning (21NR9) and 21NR29, have buried Archaic deposits one and two meters deep, respectively. Radiocarbon dates from both sites place the Archaic occupations at about 600 to 1500 B.C. Recovered cultural remains of Knife River Flint indicate a form of regional resource procurement or exchange was well established by Late Archaic times. Also, a large quantity of bison remains are represented at both sites. Michlovic (1983b) suggests that subsistence during most of prehistoric time in the Plains region was focused upon bison procurement. However, he also states that fluctuations in the environment undoubtedly affected the development of focal or diffuse adaptations.

Woodland Period (500 B.C. to A.D. 1000)

Following the Pelican Lake phase is the Besant phase (A.D. 1 to A.D. 800). This phase is characterized by side-notched projectile points of varying sizes. There is a marked preference for Knife River Flint in the production of

projectile points and associated tools (Reeves 1970). It is during this time that the atlatl was being replaced by the bow-and-arrow on the Northern Plains (Reeves 1970). The association of Besant projectile points with secondary burials in log-covered chambers may indicate mound building in the early Besant phase (Joyes 1970). Pottery first appeared in the study area at this time. The cordmarked pottery and mound building characteristics suggest influence from Woodland cultures to the southeast. Besant campsites appear to represent lengthy or repeated occupations by nomadic bands which coalesced during communal bison hunts (Joyes 1970). No data concerning habitation structures for Besant peoples in southwestern Manitoba is available, but tipi rings have been found in association with Besant tools in Alberta (Reeves 1970:165). The Besant phase is well represented northwest of the present project area at the Avery site (Fig. 7), located along the headwaters of the Pembina River in Manitoba (Joyes 1970).

The Avonlea phase (A.D. 400 to A.D.700) is partially contemporaneous with the Besant phase. The Avonlea phase is characterized by small, corner-notched and side-notched projectile points indicative of the use of the bow-and-arrow (Good et al. 1980:28). A gradual transition from atlatl to bow-and-arrow is not discernible, suggesting that the transition was very rapid or occurred elsewhere (Reeves 1970:171). Avonlea ceramics consist of fabric-impressed, bossed, or punctated conoidal-shaped pottery vessels. Campsites appear to be small, temporary camps of nomadic hunters and gatherers. Nomadic bands appear to have coalesced during communal bison hunts. The Avonlea phase is represented at the aforementioned Avery site (Joyes 1970).

During the Woodland period there was widespread construction of linear and circular mounds containing flexed and disarticulated primary and secondary bundle burials. Utilitarian and ornamental goods are associated with the burials. This mound complex has been defined as the Arvilla complex (A.D. 600 to A.D. 900) (Johnson 1973:66). The Haarstad burial mound (21MA6) (Fig. 7), located east of the study area near New Falden, Minnesota, is a manifestation of the Arvilla complex. It consists of a long, low, linear mound situated on a former beach of Glacial Lake Agassiz. It contained two burial pits (Johnson 1962:163). The Lake Bronson site (21KT1) (Fig. 7), located in northwestern Minnesota near the study area, has an Arvilla complex component (Anfinson et al. 1978) containing Blackduck ceramics.

Blackduck pottery sherds were recovered from one site (32PB42) within the project area. In addition, a Late Woodland projectile point was recovered from site 32WAB and Woodland-like or Blackduck ceramic sherds were recovered from 32PB47.

Late Prehistoric Period (A.D. 1000 to A.D. 1600)

The Manitoba phase first appears in Minnesota at approximately A.D. 800 and ends about A.D. 1400. It is characterized by Blackduck ceramic ware and small, side-notched projectile points. It has been hypothesized that Blackduck ceramic ware and the Manitoba phase represent the prehistoric Assiniboine (Wilford 1945; Vickers 1945; MacNeish 1954). Lugenbeal (1978:45-68) hypothesized that Blackduck ceramic ware represents an Algonkian, not Assiniboine, culture in Minnesota. Manitoba phase sites are usually small and appear to represent small bands of nomadic hunters and gatherers. Subsistence strategy included procurement of bison, deer, fish, and mollusks. Mound building, grave goods and secondary burials are associated with the Manitoba phase (Joyes 1970).

The Manitoba phase is followed by the Selkirk phase (A.D. 1350 to A.D. 1750) which is characterized by fabric-impressed ceramic ware and small, side-notched projectile points (MacNeish 1958). MacNeish (1958) hypothesizes that the Selkirk phase is the prehistoric and early historic Cree. Selkirk phase sites are usually small, representing nomadic hunting and gathering bands which coalesced during communal bison hunts. In southeastern Manitoba Selkirk phase sites contain deer, fish, and shellfish, but few bison remains. Many sites having Selkirk phase components have been reported near the study area (Good et al. 1980:30).

A recent survey along the Red River in Norman County, Minnesota (Fig. 7) resulted in locating 41 new sites and find spots (Michlovic 1982a,b, 1983a). All of these sites and findspots are located less than one-quarter mile from the Red River. Of these, 31 were situated in meanders in the river. All of the sites had surface components attributed to Late Woodland and/or 20th century occupations. Ceramics were the most frequent artifact type found. The majority of the ceramics are assigned to Sandy Lake ware. There are some decorative elements which suggest affiliations to Oneota. The survey illuminated the interrelationship between the Sandy Lake and Oneota ceramic traditions in the northern Midwest (Michlovic 1982b:63). The survey also provided information which indicates the Red River Valley was heavily used by Woodland peoples during at least some seasons of the year. Faunal remains suggest bison was the focal subsistence source while smaller mammals and fish were also utilized (Michlovic 1982b:66-67).

Michlovic (1983a:27) recommends the use of Syms's (1977) Co-Influence Sphere model as a conceptual device for understanding prehistoric and early historic use patterns of the Red River Valley. According to the Co-Influence Sphere model, any region may be an important resource procurement area for several different social groups, although it may be the primary region for only one of the social groups. "Multi-environmental use by single ethnic groups, and multi-ethnic

use of a single environmental area, are key notions of the Co-Influence Sphere model" (Michlovic 1983a:27).

Using this conceptual device for the present study area, in Pembina and Walsh counties, the following scenario can be developed. The large, late prehistoric and historic villages along the Missouri River probably integrated surrounding, more nomadic peoples into their own economic systems. With the development of these large, sedentary villages around A.D. 1000, widespread economic relationships were established over extensive geographic areas. Archaeological and ethnographic evidence indicates they were engaged in extensive trade relations (Lehmer 1971:98-99). The recovery of substantial quantities of Knife River Flint and some obsidian from Late Woodland sites in Cavalier, Pembina, and Walsh counties, North Dakota (Brown et al. 1982) suggests some form of economic exchange had been developed during this time. The high occurrence of Blackduck ceramic ware in these counties suggests the prehistoric Assiniboine (Wilford 1945; MacNeish 1954) or Algonkian (Evans 1961; Lugenbeal 1978:45-68) were extensively using the lower Pembina River and Red River valleys in these three counties. Although other Late Woodland ceramic styles occur occasionally, the predominant ceramic ware is Blackduck. Using Syms's (1977) Co-Influence Sphere model and its application to Norman County, Minnesota Late Woodland sites by Michlovic (1983a:27) as models, there is substantial evidence that the floral and faunal resources of northeastern North Dakota were probably utilized by several distinct Late Woodland peoples. However, the available evidence suggests the manufacturers of Blackduck ceramic ware were the peoples who primarily used the region while other nomadic peoples only utilized the region's resources seasonally or occasionally. The high frequency of Knife River Flint at many of the sites with Blackduck ceramic ware supports the contention that the region's focal users had some form of economic trade established with the sedentary villagers along the Missouri River. One aspect of the trade was undoubtedly Knife River Flint, which was provided to the region by the village societies. Exactly what was traded by the region's occupants to the village societies has not been determined, but it may be suspected that subsistence material, such as bison products, may have been involved in the exchange network. Such symbiotic relationships between nomads and horticulturists is not uncommon (Syms 1977:142).

It is interesting to note that little or no Sandy Lake ceramic ware has been recovered from Pembina, Walsh, and Cavalier counties, North Dakota. Sandy Lake ceramic ware has been recovered from the upper reaches of the Red River and the James River in North Dakota (Michlovic 1983a:27-28). Since Sandy Lake ceramic ware and Blackduck ceramic ware are more or less contemporaneous, then the Late Woodland focal users of Norman County, Minnesota (located only 150 kilometers southeast of Walsh County, North Dakota) are a

different ethnic peoples than the focal users of the extreme northeast corner of North Dakota. However, both groups had economic trade relations with the village tribes along the Missouri River. This supports the Co-Influence Sphere model proposed by Syms (1977) and used by Michlovic (1983a:27-28). There is ethnographic evidence that similar economic trade networks and sharing of desirable resources occurred during the historic period (Syms 1977:142).

Historic Period (Post-A.D. 1600): Historic Indian Groups

Ray (1974) discusses Indian migration westward and southwestward into northeastern North Dakota. He analyzes the causes and timing of tribal migration and resource exploitation both in seasonal and long term periods from 1660 to 1870. There are numerous references to seasonal activities but the nature and season is not always specified.

There were four Indian groups historically associated with the Red River of the North: the Cree, Assiniboine, Chippewa, and Dakota (Sioux) (Good et al. 1980:33-36). Some early archaeological research and ethnographic data suggest the Hidatsa may have occupied portions of the Red River in prehistoric times (Michlovic 1983a:26). The ancestral Cheyenne used the Red River Valley during the Proto-historic period. According to oral tradition (Weist 1977:9-17; Grinnell 1972 vol. 1:4; Wood 1971:51), these people, an Algonquian-speaking group, originally lived along the shores of large lakes within the woodlands between the Great Lakes and Hudson Bay. They eventually migrated to present-day Minnesota where, by about A.D. 1650, they were already living in the upper Mississippi region. By 1675, they moved to the upper Minnesota River area where they built a fortified earth lodge village, practiced horticulture, and hunted bison. A 1688 map made by Jean-Baptiste Louis Franquelin, based on information supplied by the Dakota, indicates the Cheyenne were living near the Yellow Medicine River. Shortly afterward, they built another fortified earth lodge village between Big Stone Lake and Lake Traverse. Franquelin made another map about 1700 indicating that the Cheyenne had left the Minnesota River Valley and were living on the Sheyenne River in present-day North Dakota. They occupied this village until about 1770 or 1790, when they may have been forced out of the area by the Chippewa and/or Dakota. The Cheyenne moved to the Missouri River and eventually onto the High Plains. It has been pointed out that the movements of the Cheyenne to the Missouri, and beyond, probably did not occur as a tribal body. Rather, the movements were those of individual camps or villages (Wood 1971:70; Grinnell 1972, vol. 1:14-15, 21-22). "Settlements on the Minnesota River and on the Missouri may thus have been contemporaneous with the village or villages on the Sheyenne River" (Wood 1971:70).

Northeastern North Dakota was part of the territory occupied by the Cree in approximately 1750. The Cree are an Algonquian-speaking tribe, closely related to the Chippewa,

both linguistically and culturally. They were essentially a forest people, but a portion of the tribe moved onto the Plains in order to exploit the bison. This group eventually became known as the Plains-Cree. They were very active in the fur trade. Their camps were reported along the Red River in 1800 and 96 kilometers (60 miles) north of the study area in 1804 (Henry in Coues 1897). Denig (1961:101), a fur trader in the employ of the American Fur Company for 23 years (1823-1856) among the Upper Missouri tribes, indicated the Red and Pembina rivers formed the southeast boundary of the Plains-Cree. The Dakota were the traditional enemies of the Cree. A state of war had existed between both groups since prior to 1640, when they were contacted by Jesuit missionaries. The Cree were usually allied with the Assiniboine and Chippewa in their conflict with the Dakota (Denig 1961:102). A group of Dakota were ambushed by the Cree near the mouth of the Pembina River (Denig 1961:116).

The land to the west and north of the study area is reported to have been inhabited by the Assiniboine from at least the middle of the 18th century (Good et al. 1980:33). Although the Assiniboine are not presently considered a part of the Dakota tribe, they originally constituted a part of the Yanktonai Dakota (Feraca and Howard 1963:83). The split occurred prior to 1640. They served as middlemen in the fur trade, trading European goods to Plains tribes who had no direct contact with Euro-Americans (Denig 1961:69). They were always firmly allied with the Cree, and somewhat less with the Chippewa, in warring against the Dakota (Good et al. 1980:34). Both the Cree and the Assiniboine probably had seasonal camps in the study area.

The Chippewa, more properly, the Plains-Ojibway, were the most important historic Indian tribe within the present study area. The Plains-Ojibway were originally a part of the Chippewa inhabiting the forests of Michigan, Wisconsin, Minnesota, and Ontario who were attracted to the Plains by an abundant supply of game for the fur trade and large game for subsistence and eventually completely adopted the Plains lifestyle (Howard 1977:13-20). They were first reported in the study area in the journal kept by Charles Jean Baptiste Chaboillez at the North West Company post at the mouth of the Pembina River, a tributary of the Red River, in 1797 (Hickerson 1959). At that time they had no permanent location but were nomadic hunters, some even hunting buffalo on foot (Hickerson 1956:305). Hickerson (1956:317) reported that from 1801 to 1808 many Chippewa lived near Henry's post at the mouth of the Pembina River. This group appeared to be the nucleus of a widely distributed and segmented group, identified in many accounts until 1863 as the Pembina Band of Chippewa. In 1863 the Red Lake and Pembina bands of Chippewa ceded their lands in Minnesota and North Dakota (Schulenberg 1956:141). The present Turtle Mountain band of Plains-Ojibwa was formerly a part of the Pembina band (Delorme 1955:132).

In general, the Dakota bands were south of the study area. When the Dakota did appear in the study area, their arrival was generally associated with warfare against the Chippewa, and occasionally, Euro-Americans were caught in the middle of the skirmishes. By 1805 a decline in game available in the Pembina area forced the Chippewa to expand south into Dakota territory to find furs and game. Warfare between the two groups increased, and in July, 1808 the Yanktonai and Wahpeton Dakota attacked the Pembina fort, itself. This attack, along with the decrease in game, forced Henry to abandon his post (Hickerson 1956:319-325).

The Chippewa did not entirely abandon the region. Some remained during the time that the Selkirk settlement occupied Pembina. By 1823, when Stephen Long's survey party visited Pembina, there were ten bands of Chippewa in the area, but none labelled "Pembina". The Pembina band apparently had scattered over a wide area of the Red River Valley. By the second quarter of the 19th century some Chippewa in the Red River area were accompanying the metis on bison hunts (Hickerson 1956:325-327).

No permanent village sites have been associated with historic American Indian groups within the study area. The historic American Indians were nomadic hunters who were intimately involved in the fur trade of the middle Red River region. The Pembina band of Chippewa were the closest to being a settled group, and they were only seasonal campers near Henry's post. Michlovic (1983a:27) explains the movements, migrations, and use of the Red River Valley in terms of the movements of one people after another, pressured from the east by European immigrants, out of the woodlands onto the grasslands. Other evidence suggests some of these peoples, particularly the Dakota, utilized enormous geographic areas. Michlovic (1983a:27) recommends the use of the Co-Influence Sphere model proposed by Syms (1977) as a conceptual device for understanding prehistoric and historic use patterns.

Metis

The metis (French for "mixed") were the offspring of white traders and Indian women. Of no small consequence, until 1870 they composed by far the largest element in the population of the Red River settlements. In 1850, the United States Census listed 1,116. Most metis reported they had been born north of the international boundary and most men stated their occupation was "hunter" (Robinson 1966:68).

Until 1845, most of the metis lived north of the international boundary. They were encouraged by the American government to become United States citizens (in the interest of the American fur trade). The prospect of sharing in treaty money when the United States bought the Red River Valley from the Chippewa made the metis enthusiastic about the American

government. St. Joseph (Walhalla, North Dakota) was "the metis center of the Pembina District of Minnesota Territory from 1851 to 1859" (Woolworth 1975:17). Pembina was more of a rendezvous area for commencing bison hunts, but more and more metis settled there as time progressed.

The metis did some farming, but the bison hunt was the basis of the metis culture (Heilbron 1959:310). There were two hunts each year, in June and October. Almost the entire population participated, including entire families. Alexander Ross (1957:248) recounts that 1630 metis participated in the bison hunt of 1840. They gathered near the Pembina River to select captains and establish rules. Since many people were involved in the hunts, the rules were necessary to ensure an orderly, good hunt. Since the metis were almost exclusively Catholic, a Catholic priest frequently accompanied the hunt, and helped to ensure respect for the rules. When the preparations were completed, they traveled onto the plains in a southwesterly direction, hunting bison for weeks or even months.

The average hunter could kill three or four buffalo in a half hour chase; those with the fastest horses might get ten or twelve. On the fall hunt of 1845, the 55 hunters killed 169 cows one day, 177 another, 114 another, and 168 another; in all they killed 1,776 cows (Robinson 1966:71).

The metis did not practice conservation in the hunting of bison. They often killed more animals than the oxcarts could haul. A cart could carry about 360 or 400 kilograms (800 or 900 pounds) of dried meat. The live weight of a bison cow averages about 450 kilograms (1,000 pounds), of which approximately half is usable. Therefore, even if a hunter killed only eight or ten bison cows, the resulting usable dried meat would be more than a single cart could haul. In such cases the hide, tongue, and more select portions of meat were processed, leaving the rest of the carcass to rot on the plains. It was believed that such practices resulted in a sharp decline in the number of bison and posed a threat to the Dakota who relied upon bison for subsistence. Consequently, the Dakota attacked the hunting parties on many occasions. With this in mind, Chief Green Setting Feather of the Turtle Mountain Chippewa complained in 1852: "The manners of his hunt is such as not only to kill, but also to drive away the few he leaves, and waste even those he kills" (Robinson 1966:72).

These hunts produced the chief commodity carried by the metis to the growing American market on the upper Mississippi. In 1847, an oxcart train headed for St. Paul with 120 carts loaded with peltries and buffalo hides. In 1865, a train of 1,200 oxcarts traveled to St. Paul (Woolworth 1975:19, 22). After the hunt, the metis kept half the provisions for themselves and sold the other half and the buffalo robes to the fur companies or carried them to St.

Paul in exchange for dry goods, sugar, coffee, and other necessities.

Early Exploration

The first non-American Indian to visit the future state of North Dakota and leave a written record was Pierre Gaultier de Varennes, Sieur de La Verendrye (Smith 1980). He had heard of a great river flowing westward, and in 1738 explored the lands west of Lake Superior, across the Red River to the Mandan villages on the Missouri River. His exact route is still not known. Although Reid (1965:118-119) disagreed with Libby's (1908) earlier translation of La Verendrye's locations, both men showed the early French man's crossing of the Pembina River to the northwest of the present study area, in present Manitoba (Reid 1965:124).

Fur Trade

The earliest whites to contact the American Indians of the middle Red River region were the fur traders. Initially, these were the French. One aim of the fur trade was the occupation of "the newly discovered continent in order to exploit its human and natural resources at a new level of technological development in such fashion as to increase the wealth of Europe" (Holder 1955:3). Although it was not an equal partnership, each group held the upper hand at one time or another. Success required the cooperation of both parties. The American Indians provided labor for the production and transportation of furs, principally beaver and muskrat. In return, the traders mainly supplied products of the metal and textile industries (i.e., axes, guns, kettles, beads, cotton and woolen cloth, etc.). During initial penetration of a region, the traders depended on the cultural contributions of the resident native populations. American Indian modes of housing, clothing, transportation, and subsistence were adapted to the traders' needs. Generally peaceful relations prevailed since aggression would have deprived the American Indians of trade goods and the traders of furs and provisions (Holder 1955:3; Ray 1974:xi).

The Hudson's Bay Company was organized under a charter granted to it by King Charles II of England in 1670. The charter gave the company ownership of the land and a monopoly of the trade in the territory drained by the rivers flowing into Hudson Bay. This territory was known as Rupert's Land (Listenfelt 1913:236). This was the genesis of the Northwest fur trade, although it was a rather premature move on Charles' part since France owned Canada in 1670.

Closer to the study area, French traders had been in the area of Lake of the Woods (about 160 kilometers or 100 miles east of Pembina) as early as 1679. In 1738, the French-Canadian explorer and fur trader, Verendrye, passed through the immediate vicinity of Pembina in search of the overland

route to the Western Sea. King Louis XV of France gave him exclusive fur trade rights in the territory he explored and claimed in the name of France (Smith 1980).

The Pembina area of the middle Red River region was especially suited to the fur trade. Critical resources were abundant and it was centrally located to other fur trade activity. The best furs were found on animals of densely wooded areas, such as the Pembina Hills to the west. An extensive food supply was provided by the bison herds on the prairie. In addition, three waterways provided transportation for the area: to the south, the Mississippi-Missouri route; to the east, the St. Lawrence-Ottawa-Great Lakes-Lake of the Woods route; and to the north, the Huson Bay-Hayes River-Lake Winnipeg route (Robinson 1966:54).

The earliest record of a trader maintaining a post in the Pembina area is 1780. It is unfortunate that Keating, the historian and geologist of the Long Expedition of 1823, failed to record the man's name when he spoke to him in Pembina (Johnson 1965:85; Working 1931:7). The exact location of this post, other than "Pembina", is unknown.

About 1790, Peter Grant, a clerk for the North West Company, built a post on the east bank of the Red River opposite the mouth of the Pembina River near present-day St. Vincent, Minnesota (Johnson 1965:85; Robinson 1966:58). This fort was one of the first ever built on the Red River. Its remains were observed by Alexander Henry, Jr. when he first entered the Red River area in 1800 (Dean 1910:352).

Charles Jean Baptiste Chaboillez came to Pembina in the service of the North West Company on September 22, 1797. The fur supply to the east of the Red River was becoming depleted and the company was seeking virgin territory. The Chippewa had to be coaxed to move west with the traders as it brought them uncomfortably close to the Dakota (Johnson 1965:83-86).

On his way to Pembina, Chaboillez learned of the presence of a Hudson's Bay Company post on the west bank of the Red River about 2.4 kilometers (a mile and one-half) north of present-day Pembina. On September 24, 1797, he called upon the trader in charge, Richards, and spent about an hour there. On October 25, 1797, Richards left the Hudson's Bay Company post and went to work for Chaboillez. Thomas Miller then took over control of the Hudson's Bay Company post (Johnson 1965:88-91).

For his post, Chaboillez selected a site on the high south bank of the Pembina River near its mouth. A storehouse, shop, large house (70 feet) and two small houses were erected (Johnson 1965:89-92). The site of Chaboillez's post is presently occupied by the Pembina State Museum and Pembina State Park (Christopher 1967).

Chaboillez and his men left Pembina on May 17, 1798. The season's take included: 1,785 beaver, 23 bear, 27 elk, 98 bison, 24 deer, 46 wolves, 11 mice, 12 fox, 7 martin, 3 otter, 8 fisher, 8 raccoon, 3 mink, and 7 swans. Whether Chaboillez returned to Pembina that fall is uncertain. The buildings of his post are said to have been burned in the fur trade conflict of 1815 (Johnson 1965:89-92, 98-99).

Vincent Roy, distinguished as being Walsh County's first settler, started a post for the North West Company in October 1797. Very little is known about this post other than that Chaboillez and David Thompson, a geographer, both refer to a visit to the Roy Post in March, 1798 (Hickerson 1959:379). It was located on the left bank of the Red River approximately 8.8 kilometers (five and one-half miles) south of the mouth of the Park River. This location is immediately north of the former town of Acton. David Thompson's survey records Roy's post as being situated at 48 degrees, 23 minutes, and 34 seconds north latitude, but the longitude is not recorded (Rolczynski 1977). Recent literature and field investigations by Rolczynski (1977) have revealed that Roy's fur trading post is located north of the Red River in section 25, T157N, R51W. Although the site location has not been verified by archaeologists, flintlock gun parts have been recovered from the site area with the aid of metal detectors (Rolczynski, 1983 personal communication).

Alexander Henry, Jr., a partner in the North West Company, came to the area in the summer of 1800. Seeking bountiful fur country, he pushed south of Pembina and built a post a quarter of a mile up the Park River. The post was compact and consisted of a storehouse and several houses surrounded by a stockade (Dean 1910:353). (A rest area on U.S. Interstate 29 at Park River is dedicated to Henry's post). While Henry had a profitable season there, the Chippewa he had brought with him were in constant fear of attack by the Dakota (Dean 1910:365; Robinson 1966:58-59).

He abandoned the Park River post in the spring of 1801 and built another on the north bank of the Pembina River near its confluence with the Red River, one hundred paces from both rivers (Dean 1910:355-356). Henry's Pembina post consisted of a storehouse, a stable for horses, a blacksmith shop, and some whitewashed houses surrounded by a stockade. In 1802, a new storehouse was built and in 1807, a new stable was built (Robinson 1966:58-59).

Henry spent seven seasons at the Pembina post, from 1801 to 1808. Annual raids by the Dakota did so much harm and created so much fear that by midsummer of 1808 many of Henry's Indians had moved north (Green 1974:90). Losses due to hunting, war, and disease also reduced the Indian population. Overtrapping had depleted the fur-bearing animal population. Henry obtained only 696 beaver pelts in the 1807-1808 season as compared to 2,736 in the 1804-1805

season. Pembina was no longer the fur traders' paradise it once was and Henry left on August 8, 1808, shifting his energies toward the fur trade of the Pacific Northwest where he died in 1814 (Robinson 1966:60-61; Dean 1910:360).

As a result of friction within the North West Company, several partners left the company in 1801 and formed a rival organization known as the XY Company. In 1801 or 1802 the XY Company began to build a post near Henry's, but it was probably abandoned after the company was absorbed by the North West Company in late 1804 (Nute 1930:367).

Of considerable impact on the fur trade was the Selkirk Colony. Thomas Douglas, the fifth Earl of Selkirk, wanted to establish a colony for the Scotch and Irish peasantry who were suffering severe hardships in their homelands. After an unsuccessful attempt to interest the British government in the project, he turned his attention to the Hudson's Bay Company and became its principal stockholder (Pritchett 1924:404). In 1811, the Hudson's Bay Company granted Selkirk a district to be known as Assiniboia, about 274,540 square kilometers (116,000 square miles) including the entire valley of the Red River of the North, for establishment of an agricultural colony (Listenfelt 1913:243-244; Robinson 1966:63).

This was not an altogether altruistic move on the part of the Hudson's Bay Company. The company recognized that an agricultural colony, producing food supplies, could relieve them of the great expense of importing food from Britain. Moreover, it would encourage retiring traders to settle in the area and spend their money with the company rather than to return to England. Hopefully, it would also become a convenient labor pool for the company (Robinson 1966:63).

The North West Company perceived even greater advantages for the Hudson's Bay Company. They did not view an agricultural settlement and the fur trade as being compatible and were convinced that colonization was a scheme of the Hudson's Bay Company to obstruct and deprive the North West Company of its fur routes and trading posts (Pritchett 1924:405). Since Selkirk's grant encompassed the strategic region of the fur trade within which the North West Company operated, the company which could control the region would also be in command of the fur trade. Not only was the region valuable for its furs, but it was also a good outlet via the Great Lakes and a base for extending trading operations to the bountiful fur region to the northwest (Listenfelt 1913:244). The North Westers attempted to block the grant by buying stock in their competitor's company and sending out agents to thwart the recruitment of settlers.

During the intense struggle which ensued, the brunt of the competition fell upon the innocent colonists. They arrived at Fort Douglas in the summer of 1812 faced with an uncertain

food supply, environmental difficulties, the doubtful character of many of the immigrants, and lacking farm stock and tools. Both companies suffered food shortages and began to raid each other's supplies, threatening the existence of everyone (Robinson 1966).

These early settlers relied heavily on the bison herds for survival. Since the bison did not usually migrate any farther north than Pembina, the settlers went to Pembina and established Fort Daer in 1812 on the south bank of the Pembina River near its confluence with the Red River. (The site is presently occupied by Pembina State Museum and Pembina State Park). Fort Daer consisted of cabins and a storehouse surrounded by a stockade. It served as a winter fort for the settlers for more than a decade (1812-1823) (Robinson 1966:64-65).

While Robinson (1966:63-64) asserts that the "Pemmican Proclamation" of January, 1814 was issued due to a scarcity of food, Gressley (1957:90) is not so charitable and asserts that the governor of the colony, Miles McDonell, put an embargo on all pemmican leaving the Selkirk grant with the intention of crippling the operations of the North West Company. According to this proclamation, a license obtained from the governor was necessary in order to carry any type of provisions out of the colony. Since all of the provisions for the North West Company's trade had to be carried through the district of Assiniboia, they would be unable to conduct their fur trade operations in that region if the proclamation was enforced. The governor was not about to grant them licenses. Consequently, the proclamation greatly incensed the North West Company (Listenfelt 1913:245).

The situation worsened in October, 1814 when a second proclamation was issued warning the North West Company to abandon their posts and cease their trading activities. They ignored this demand, knowing that the colonists were unable to enforce it. "They would not give up so easily their immense property interests at the mere word of those whom they regarded as foreign intruders" (Listenfelt 1913:245).

In June, 1815 the North West Company made an armed attack on the colony. The governor was arrested and sent to Montreal. The Hudson's Bay Company agreed to abandon the colony in order that trade could continue as usual. Some colonists entered the employ of the Hudson's Bay Company. The North West Company took about 50 families to Canada. The storehouse, mill, and cabins were burned (Listenfelt 1913:245; Robinson 1966:63-64).

To all appearances the colony was a failure, but in the fall of 1815 another group of immigrants arrived and spent the winter at Pembina in the company with some of the former colonists. They returned to Fort Douglas in the spring of 1816 and siezed Fort Gibraltar, the nearby North West Company

post. Consequently, a number of North Westers attacked the colonists and about 20 colonists were killed during the ensuing encounter (referred to as the Massacre at Seven Oaks). The remaining settlers withdrew from the area but returned shortly thereafter when the Earl of Selkirk arrived with soldiers and restored order (Listenfelt 1913:245-246; Robinson 1966:63-64).

A dispatch sent to the Governor General of Canada in early 1817 from the Home Government ordered the restoration of all forts and trading posts. In addition, all traders were allowed to continue their usual trade without any hindrances. A commission was formed to enforce these instructions "and finally reported that the only means of restoring peace completely would be through the union of the rival companies" (Listenfelt 1913:246).

Although the Hudson's Bay Company had been successful in controlling the trade of the Hudson Bay area, it encountered difficulties when it began expanding into the interior in the 1770's. It was confronted with the problem of modifying its more or less rigid organization, which was adapted to Hudson Bay and controlled closely from London, "to the demands of trade as carried on in the interior under radically different conditions where close control was impossible" (Innis 1956:149). In order to compete effectively in the interior, it was necessary for the company to reorganize its policies. Although changes occurred slowly, transportation facilities were improved (e.g., greater use of boats), supply depots were organized, and a communication system similar to that of the North West Company was established. In addition, Innis (1956:160) states, "It was necessary to abandon the policy of control from a centralized body in London, and to stress the development of individuality, self-reliance, and bargaining ability among the traders." The company's personnel policy change had the benefit of the North West Company's experience. As the result of reorganization, the Hudson's Bay Company was able to compete more effectively after 1810 (Innis 1956:158-164).

While the Hudson's Bay Company was reorganizing, the North West Company experienced a period of rapid expansion during which control within the company became more concentrated, resulting in problems. Although the North West Company had found it necessary to expand into new territories prior to its amalgamation with the XY Company in 1804, the acquisition of new territory after the amalgamation was even more crucial since the company's personnel had increased by approximately one-third (Innis 1956:160-161, 259). As viewed by Innis (1956:262), the organization of the North West Company was adapted to an expanding trade, but when new territory was no longer available, the company was unable to adapt to a permanent trade. The decline in the number of beaver, increased costs of transportation, and the necessity of increasing profits also compounded the situation and

resulted in an increase in hostility between the North West and Hudson's Bay companies (Innis 1956:262-263). Several unsuccessful attempts were made to ease friction between both companies, but in the end it was amalgamation, which occurred on March 26, 1821, that finally ended the hostilities.

In 1823 Major Stephen H. Long's expedition for the United States government located the international boundary and found that all of Pembina, except one cabin, was located south of the 49th parallel (Kane et al. 1978:183). The Hudson's Bay Company had the metis and white settlers abandon Pembina in 1823, although that was its intention even before the boundary findings of Long's expedition. The company thought that the division of the settlers between Pembina and Fort Douglas weakened the colony. The colonists pulled down Fort Daer and the company's fort and floated the lumber down the Red River to Fort Douglas. Some of the metis and settlers remained at Pembina, but when Martin McLeod, a fur trader, passed through the area in 1836, Pembina was deserted (Robinson 1966:65-66).

Following the amalgamation of the Hudson's Bay Company with the North West Company in 1821, the Hudson's Bay Company turned its attention toward eliminating competition on its frontiers. The American fur trade, particularly the American Fur Company, was the most serious threat to the Hudson's Bay Company's southern frontier. In 1829 or 1830 William Aitkin, a trader with the American Fur Company, built a post at Pembina, but competition with the Hudson's Bay Company was stiff. In 1833 both companies reached an agreement whereby the American Fur Company agreed to abandon its frontier posts from Pembina to Lake Superior in exchange for payment of three hundred pounds sterling per year. Thus, the Hudson's Bay Company was able to maintain a trade monopoly in its southern frontier as long as the American Fur Company remained solvent. When the American firm failed in 1842, it was a severe blow to the Hudson's Bay Company. Trade competition was renewed on the frontier after a decade of tranquility (Galbraith 1959:248-249).

The former agreement was unknown to Norman Kittson when, in 1843, he proposed to stop the flow of large quantities of American furs to the Hudson's Bay Company by establishing a permanent post at Pembina. He erected a trading post in 1844 on the former site of the North West Company's fort built by Henry in 1801. Kittson's post presented an "imposing appearance". The houses were built around an open space. Around the angles of the yard were various warehouses, an icehouse, blacksmith shop, and the trading house (store). In front, toward the river, were barns and stables (Rife 1925:228-229, 232).

Competition raged. Smuggling ran rampant on both sides. At times the Hudson's Bay Company paid very high prices for furs, sometimes even in cash, at the border posts. Though

Kittson protested vehemently, liquor flowed from the Hudson's Bay Company (Rife 1925:232-240). In 1846, Henry Fisher, in the employ of the British company, obtained an American trader's license and constructed a building for trading purposes "almost at his (Kittson's) door" (Rife 1925:235). Fisher erected two buildings, a small house, and a store, requiring only four days to build. Appropriately, the post was named Fort Defiance. In 1849, it was reported that there were "very extensive buildings" under construction (Nute 1941:278-280).

In 1850, Kittson was gladdened by the appointment of an American customs collector at Pembina, but he was fighting a losing battle. After a decade of struggle, Kittson turned the business over to Joseph Rolette, Jr. in 1854, but Kittson retained financial interest in it for some years thereafter (Rife 1925:238, 251).

It is not known how long Rolette maintained the post, but fur trade in the area was over by the 1870's. The impact of the trade, however, was nothing short of tremendous: it formed a new culture, the metis; it brought changes to lifeways of American Indians; it led to the decimation of fur-bearing animals and bison; and it produced numerous trails and new means of transportation, opening the region to wider markets.

As mentioned previously, interaction in the fur trade markedly altered the material culture of the American Indians. They adopted articles of European manufacture that were improvements on native-made ones or that were more efficient for doing things they had always done (Gilman 1974:4; Innis 1956:17-20). In addition, since increasing emphasis was placed on the beaver, European articles were in demand which made it possible to spend more time in obtaining beaver pelts (Innis 1956:20). Native-made stone, bone, and wooden tools and weapons were replaced with items, such as fire steels, metal tools, steel traps, and guns. Pottery and basketware were replaced by brass and iron utensils. Cotton and woolen cloth, glass beads, and vermilion paint, as well as other decorative materials, were also in demand. The changes that occurred were adaptations by American Indians of elements of Euro-American culture rather than a destruction or abandonment of their own cultures (Gilman 1974:4).

The preceding discussion of the fur trade along the Red River in northeastern North Dakota and southeastern Manitoba indicates that the region is rich in fur trade history. The Red River of the North was a portion of the earliest natural route used by traders working from Hudson Bay for reaching the Missouri River. It is unfortunate that such important regional historic cultural resources as the sites of former fur trading posts along the Red River in North Dakota have been virtually untouched. The Pembina State Museum and Pembina State Park are known to be the sites of Chaboillez's

post and Fort Daer. Although the North Dakota State Historical Society has been informed of the location of several other posts (Rolczynski, personal communication), none have been verified by professional personnel. None of the posts discussed above have been assigned site numbers. Based on available information, none of the fur trading posts are associated with farmsteads within the project area. Since many of the aforementioned fur trading posts and forts are near the confluence of the Pembina and Red rivers in Pembina, North Dakota, this area should be examined to determine what if anything remains of them.

United States and Canadian Boundary

The fact that the project area is adjacent to the boundary between the United States and Canada is of some significance historically. The 49th parallel west of Lake of the Woods was decided upon as the boundary line between the two countries in the Treaty of 1818, but it was not so easily marked on the ground. Major Stephen H. Long of the Topographical Engineers led an expedition to determine the location of the 49th parallel at the Red River. An oak post which was inscribed with "G.B." on the north side and "U.S." on the south was erected on the bank of the river at the 49th parallel (Kane et al 1978:183). A prankster later turned the post around and it stayed reversed until it rotted away (Parsons 1963:3,5).

In 1850, Captain John Pope, also of the Topographical Engineers, confirmed Long's marker, but British explorer Capt. John Palliser adopted a point 370 yards farther north. This might have inspired the citizens of Pembina in 1860 to erect what became known as the "whiskey post", about a mile north of Long's marker, in an attempt to stop the smuggling of liquor into the U.S. from a house near the border (Parsons 1963:6-7).

Smuggling had occurred earlier at Pembina when independent fur traders smuggled furs out of Canada to American Fur Company posts in order to avoid the Hudson's Bay Company's monopoly. The establishment of a custom's office in Pembina in 1851 was an attempt to control smuggling of furs at the border.

When the survey was conducted to establish the location of new Fort Pembina in 1870, Capt. David Porter Heap established the 49th parallel 1401 meters (4600 feet) north of Long's position. This included a Hudson's Bay post which was immediately confiscated for customs duty by U.S. customs officer John C. Stoeber. This led to the formation of a joint boundary survey commission which first met in 1872 at which time it was agreed to start work at Pembina (Parsons 1963:14,24). Over the next four years the survey crews computed the boundary location and erected stone monuments at every 1.6 kilometers (one mile) along the border from Lake

of the Woods west.

A new treaty in 1908 between the United States and Canada called for a re-examination of the entire boundary, including remonumenting the border from Lake of the Woods west to the Rockies. From 1909 to 1913, parties from both countries worked east from the Rockies, finding all but one of the 388 original markers. All new points and sites of old cairns and mounds as far west as the North Branch of the Milk River were marked with cast-iron monuments (Parsons 1963:145-146).

Military Frontier

As mentioned previously, in 1823 Major Stephen H. Long of the U.S. Army Topographical Engineers commanded an exploring expedition which arrived at Pembina to determine the location of the international boundary. After taking solar and lunar observations, an oaken post was erected proclaiming the location of the 49th parallel which was just north of Pembina. With the exception of one log house, the entire settlement of Pembina was within United States territory (Kane et al. 1978:183). Long's expedition was the first official U.S. military presence in the study area.

Several hundred Dakota participants of the uprising of 1862, including chiefs Shakopee and Medicine Bottle, fled to Canada in order to avoid capture by a U.S. military force from Fort Snelling. Many of these American Indians settled at the mouth of the Assiniboine River about 96 kilometers (60 miles) north of Pembina. The settlers in the area, fearing raids on their homes and disruption of transport, felt threatened by the presence of these Dakota. Consequently, appeals made to Washington resulted in authorization for a fort to be located at Pembina to serve as a buffer between the settlers and fugitive Dakota (Thomson 1969:9).

On November 13, 1863, Major Edward A. Hatch arrived at Pembina with an independent battalion of calvary organized as part of the Minnesota Volunteers. Upon arrival, the troop began building a fort (Old Fort Pembina) and rough log cabins which were completed in the middle of January, 1864. The site of this fort is in or near present-day downtown Pembina on the left bank of the Pembina River near its confluence with the Red River (Christopher 1967).

In December, 1863, Hatch's troopers apprehended a number of the fugitive Dakota who were camped at St. Joseph (Walhalla). Subsequently, the Dakota called for a council and about 200 Dakota decided to surrender immediately. The prisoners at Pembina eventually numbered about 400 (Thomson 1969:11-13). The Dakota chiefs, however, held back. The capture of chiefs Little Six (Shakopee) and Medicine Bottle, who were hiding in Canada in an Indian camp about 40 kilometers (25 miles) from Ft. Garry, occurred under

questionable circumstances in January, 1864. Both men were drugged, seized, and hurried across the border into the United States (Carley 1976:75). Little Leaf, the only remaining notable fugitive chief involved in the uprising, avoided capture along with his family and about a dozen followers. Most of them were destined to die of disease or starvation the following winter (Thomson 1969:13).

In February of 1864, some of the soldiers were sent with most of the Indians to Fort Snelling, due in part to food shortages at Fort Pembina. In May, the steamboat, "International", transported the remainder of the prisoners and troops to Fort Abercrombie. From there, they were taken to Fort Snelling. Having served its purpose, the fort at Pembina was abandoned and the buildings either rotted or were sold to local residents (Thomson 1969:13-15).

The Pembina and Red Lake bands of the Chippewa ceded to the American government in 1863 about 405,000 hectares (ten million acres) of land in eastern North Dakota, but they were disinclined to leave the ceded land. The Inspector General of the Department of Dakota, R.B. Marcy, summed up the situation at Pembina in 1868 in a letter to Division Headquarters: "Although the Chippewa have sold their lands upon the Pembina River below St. Joseph, yet they continue to claim it, and will not allow the whites to settle upon it" (U.S. Department of War 1868). Open threats made by members of Little Crow's and Little Six's (Shakopee) bands of Dakota were recorded by Pembina residents in 1868. In addition, Pembina metis sympathetic to the Reil Rebellion in Canada posed a potential danger and smuggling across the border was a common occurrence since the customs officials at Pembina had no way of enforcing the collection of import duties (Thomson 1969:17-18).

On March 25, 1870, the Department of War directed the Department of Dakota to erect a military post (New Fort Pembina, site 32PB45) in the vicinity of the Red River near the international boundary. The site was to be:

All of section 16, 17 and 18. Township one hundred and sixty three (163), North Range Number 51, West of the 5th Principal Meridian. Site selected for post is on section 16 immediately on the Red River of the North and one fourth miles above (South) of the mouth of the Pembina River (U.S., Department of War 1870)(Fig. 8).

The location was chosen because it was the highest point near the Red River and had not been flooded since 1851.

Construction of the post commenced in August. "Two double sets of officer quarters, one company barracks, one guardhouse, one bakery, two company kitchens and one storehouse were erected before the end of the year" (Thomson 1969:22). The following summer another set of barracks, two more double sets of officers' quarters, a hospital, and a

magazine were built. With the completion of the magazine, the only building on the post made of brick, construction of the fort was completed (Fig. 9). A headquarters building was never built (Thomson 1969:23-24).

In September, 1871, the garrison entered its first and only major action during the post's history. Rumors that the Fenians, a group of Irish-Americans opposed to the British rule of Canada, intended to invade Canada, this time from Pembina, were strengthened by the arrival of ex-Fenian leaders at Pembina. In October, a Fenian party took possession of a Hudson's Bay Company's post located just across the border from the Pembina settlement. Two infantry companies captured most of the Fenians and took them to Fort Pembina. They were turned over to the civil authorities for trial by the United States Commissioner, but the commissioner dismissed the charges since the act had been committed in Canada and the United States had no jurisdiction in the matter (Thomson 1969:25-27).

By 1873, the fort was accomplishing one of its main functions, settlement of the region. In 1870, only eight white men lived in Pembina, but three years later, more than 500 whites lived in the community. In 1870, there were only three frame houses. By 1873, there were 40 frame houses, eight saloons, and several stores. The increase in Red River traffic resulted in higher customs receipts, from only \$478.11 in 1861 to more than \$75,000 in 1873. In addition, a telegraph serving the fort had been completed to Pembina in 1872 (Thomson 1969:29-30).

On July 5, 1874, three women fleeing from Yanktonai Dakota arrived at Fort Pembina from St. Joseph (Walhalla). Upon arrival at St. Joseph, a troop from the fort found three men dead. They returned to Fort Pembina without discovering the identity of those responsible for the deaths. As a precaution against future trouble, ten men were dispatched from the fort to man an outpost at St. Joseph. This was the last action taken by the Fort Pembina troops (Thomson 1969:30-31).

Settlement of the area thrived and the growth of transportation was assured by the presence of Fort Pembina. By 1890, civil law enforcement was strong enough to control any disturbances that might occur; therefore, there was no longer a need for the military protection of the fort. On July 11, 1895, the post was ordered abandoned. Serviceable property was moved to other posts and unserviceable goods were sold locally. Three years later the military reservation was sold at a public auction (Thomson 1969:36-37).

Today, no former structures of Fort Pembina are in existence. All of the buildings except the officers' quarters, the guardhouse, the water tank, the hospital, and the magazine were destroyed in a fire on May 25, 1895. In

1956, the last remaining building of Fort Pembina, one of the officers' quarters, was torn down. The current residents, Alvin and Violet Warner, state that concrete from building foundations, shells from the artillery range, and other artifacts are found regularly, especially after plowing the fields.

Trails and Transportation

Growing out of the fur trade were the network of trails, commonly referred to as Red River trails, and their accompanying form of transportation, the Red River cart. Pembina was a hub for the Red River trails. To the north it connected with the Manitoba Trail to Winnipeg. It connected with the Woods Trail to St. Paul to the east. To the west, it connected with St. Joseph. One of the original Red River trails extended south from Pembina. For those who preferred a slightly drier trip, the North Dakota Trail followed the Tongue River before turning south. The River Trail coursed down the eastern boundary of the study area along the Red River (Fig. 10).

In 1832, Robert Campbell, travelling south from the Red River Settlement, stated that no trail existed south of Pembina. By 1836 this was no longer the case. A trader going north commented on a path along the river that year and in 1837 there is a record of a brigade of carts journeying south over the route (Gilman et al. 1979:42).

Traveling the River Trail involved laborious traversings of tributaries, marshes, sinkholes, and ravines. This was the result of the presence of alluvial bottom land along the west bank of the river near the timber belt lining the river. Therefore, the trail was situated on a flat plain that was subject to inundations which turned the area into an inland sea, sometimes for years. In addition to topographical hardships, the first two tributaries of the Red River south of Pembina were salt rivers and could not be used for cooking or drinking (Gilman et al. 1979:41).

For a while the Ridge Trail (along the Tongue River from Pembina and then south) emerged as the more important of the two trails, primarily because it was drier, but with the advent of the steamboat, the River Trail regained its importance. Towns sprang up along the Red River and the trail was the land route connecting them. The trail was greatly improved in 1871 when Russell Blakeley's Minnesota Stage Co. received a contract to carry the mail to Winnipeg. Stage stops were made at all the settlements then in existence. Within the study area these included Pembina, Twelve-Mile Point near Joliette, Bowsmont-Long Point 6.4 kilometers (four miles) north of Drayton and Kelley's Point or Girard's Station later known as Acton.

The decade of the 1850's saw transportation and commerce

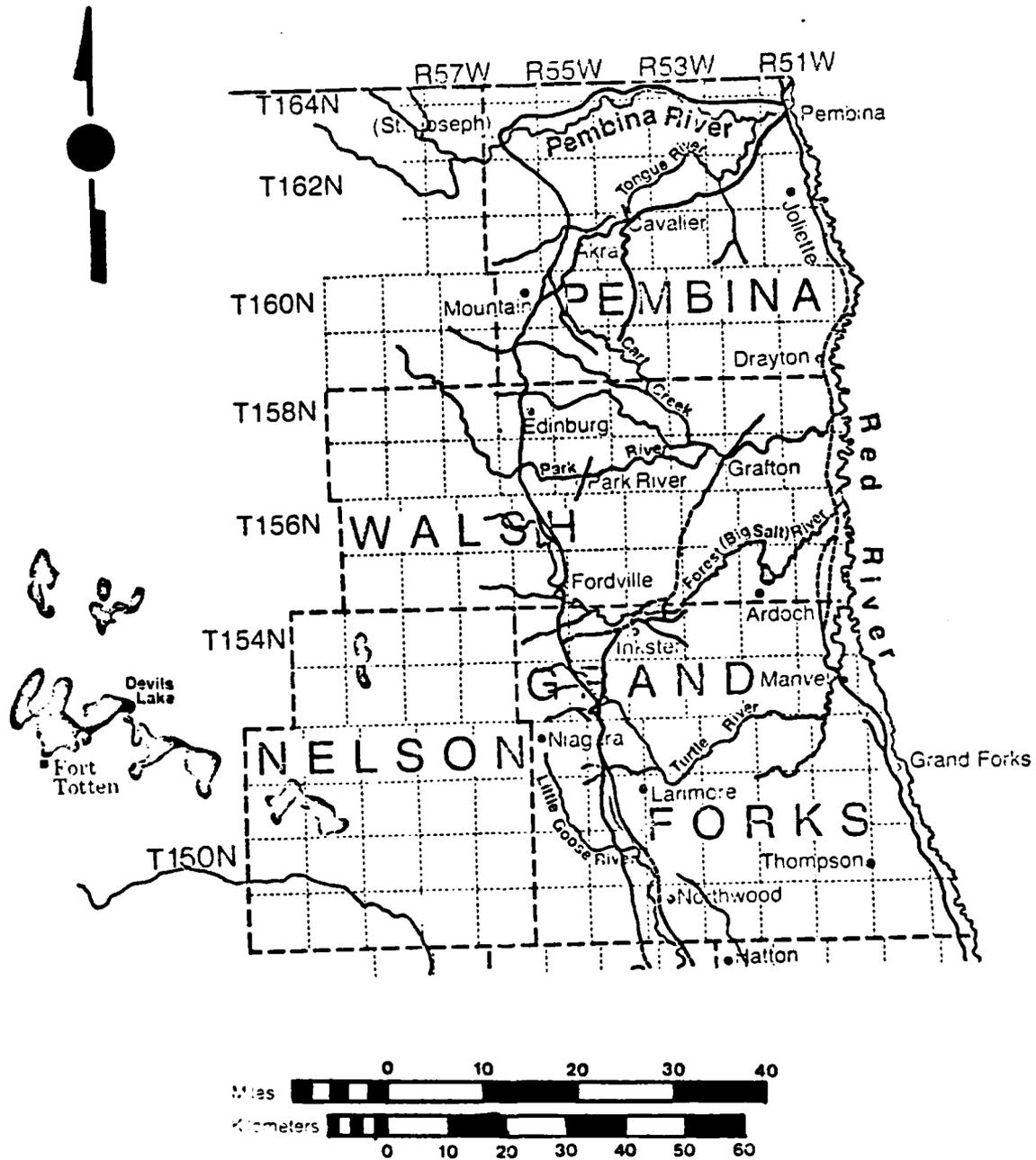


Figure 10. Map of Red River Trails in northeastern North Dakota (from Gilman et al. 1979).

over the Red River trails come into their own. In 1857, a total of 500 carts arrived in St. Paul. Besides furs, the trains brought pemmican, dried buffalo meat, moccasins and skin garments. Carried to the north were staple groceries, tobacco, liquor, dry goods, clothing, tools, hardware, guns and ammunition, farm implements and window glass.

Steamboat traffic played an important part in the development of the Red River Valley. In 1858, looking for a quicker, easier and cheaper way to transport goods, the St. Paul Chamber of Commerce commissioned Capt. Russel Blakeley and John R. Irvine to assess the feasibility of steamboat traffic on the Red River. The men returned from their observations with a positive report and the Chamber offered a bonus of \$2000 for the first steamboat launched on the Red River (Working 1931:11).

Anson Northrup took his boat, the "North Star", further up the Crow Wing River than any boat had ever gone before and dismantled it with the intention of transporting it 240 kilometers (150 miles) to Lafayette on the Red River. The "North Star" was a stern-wheeler steamboat. The stern-wheeler was especially designed for inland navigation. It had a flat bottom and could carry 363 metric tons (400 tons) in one meter (three or four feet) of water. Deciding not, for some unknown reason, to employ American Indian guides to help locate Lafayette, Northrup became lost with a perfectly seaworthy boat miles from the nearest navigable stream. A rescue team found Northrup's party near what is now Detroit Lakes, Minnesota. They were steered into Georgetown where the boat was rebuilt in the winter of 1858-59 (Potter 1950:4-5). Rechristened the "Anson Northrup", the steamboat made a round trip to Ft. Garry (Winnipeg) and returned to Ft. Abercrombie in the spring of 1859 (navigation was seasonal).

Upon receipt of the \$2000 bonus, Capt. Northrup informed Capt. Blakeley that he had fulfilled his mission and if anyone was interested in keeping the boat in operation, they would have to buy it. An associate of Blakeley's bought the "Northrup" and she made regular trips from Georgetown to Ft. Garry during 1860. In 1861, she was rebuilt and named the "Pioneer". Ultimately, the "Pioneer" passed into the hands of the Hudson's Bay Company, which dismantled it and used its engines to run a sawmill (McFadden 1952:23). The Hudson's Bay Company did not wish to see the Red River Valley developed as they foresaw the disruption of the fur trade and the end of their reign (Working 1931:11).

A new boat, the "International" was launched in May, 1862, but low water, scarcity of freight, and alarm caused by the Dakota uprising curtailed navigation until 1870. The Hudson's Bay Company bought the "International", but, in 1871, the "Selkirk" was put into operation. The Hudson's Bay Company finally realized they were not going to stop navigation on the Red River and put the "International" into

general service (Working 1931:11,15).

In the winter of 1871-2, 11 boats on the river passed into the control of Norman W. Kittson, who organized and managed the Red River Transportation Co. which was backed by the Hudson's Bay Company. Kittson's company had five boats in operation when, in 1874, an opposition line of steamers known as the Merchants International Steamboat Line was organized in order to use competition to force freight rates down. In 1876, this new company and its steamships, the "Manitoba" and the "Minnesota", passed into Kittson's control and the Red River Transportation Co. held sway (McFadden 1952:25).

By the mid 1870's, a further transportation development augmented the north-south trade. In 1877, the St. Paul and Pacific Railroad built a spur to Fisher's Landing on the Red Lake River. This made Fisher's Landing the head of navigation as boats from Winnipeg connected with the railroad there and took aboard passengers and freight. It also signalled the decline of navigation on the Red River since the reason for laying the track to Fisher's Landing was to facilitate the movement of rails and other materials to Manitoba for use in building the Canadian Pacific Railroad between Winnipeg and Ft. William (Working 1931:15). By 1878, the St. Paul, Minneapolis and Manitoba Railroad reached the international boundary and connected with a branch of the Canadian Pacific. This modern era of transportation became predominant, leaving the old cart trails to become plowed into fields by the new surge of agricultural settlement.

Steamboat navigation did not fully cease, however, until 1909, when the "Grand Forks" made a final cruise from Grand Forks to Winnipeg and back. Commercial barges transporting wheat from elevators along the Red River did not continue much longer. The years 1911 and 1912 were so dry as to make navigation impossible (Allen 1975:20). Today there is no commercial navigation on the Red River.

The steamboats stopped regularly at Drayton and Pembina and many small towns sprang up on the shores of the Red River and were serviced by the steamboats. According to Herbert Stewart, a local resident, there was a grain elevator on the shore of the river behind the Methodist Church in Drayton and one of the last elevators to cease operations on the river was in Oslo, Minnesota. Ferries crossed the river at Drayton, Acton, St. Andrews, Joliette and other points along the river. Several pontoon bridges spanned the river, one of which was at Drayton.

Agricultural Settlement

Agricultural historians have termed the years 1878-1887 the "Great Dakota Boom", indicating an influx of settlers to Dakota Territory. By 1879 the Red River Valley had become famous for its "bonanza farms", extensive wheat farms mainly

in Richland, Cass and Traill counties, North Dakota. Small farmers were anxious to use land in the valley as well, since it had been proven that crops there were productive (Fite 1966:84-86,93).

Agriculture had begun on a small scale in the Pembina area when men at Alexander Henry's post grew vegetables in the post garden. The Selkirk settlement was primarily established as an agricultural venture. Permanent agricultural settlement began in the Pembina area in the 1870's when Charles Bottineau and Charles Grant (site 32PB31) began farming.

Bowesmont was originally located on the bank of the Red River about 32 kilometers (20 miles) south of Pembina (or about two miles north and two miles east of its present location). It is said that ruts from the oxcarts can still be seen today near the original site. The town was founded by William Bowes in 1879. He and a partner owned and operated a store for incoming settlers. Other buildings erected included a hotel, a blacksmith's shop and a town hall. A Post Office was moved to this location from its former position one mile farther upriver. When the Northern Pacific Railroad built to the south in 1887, the town moved to its present location.

Much of Dakota Territory was settled between 1879 and 1886. Briggs (1930:79-80) has suggested that the extension of railroads throughout most of the area was important in starting and maintaining the flow of settlers into the area. Although the Dakotas would eventually have been occupied, the land boom would not have been possible without good transportation facilities. The appearance of railroads resulted in lower transportation costs for necessities brought into the region and also made it profitable to send surplus crops to market. In addition, since most of the Dakotas lacked trees, railroads made it possible to ship in building materials at a lower cost than was otherwise possible. The railroads also attracted settlers by distributing printed pamphlets and publishing advertisements which described the country and listed its advantages.

Historians disagree as to whether settlements drew railroads or visa versa. It is probable that neither view should be used as a hard and fast rule. Both situations probably occurred. In terms of the present project, the appearance of the railroad led to the demise of Acton (32WA7), a town which developed during the heyday of steamboating on the Red River. In the summer of 1881 Acton was the largest city in Walsh County, Dakota Territory. Shortly after the railroad reached Grafton, 19 kilometers (12 miles) west of Acton, in December of 1881, many Acton businessmen literally moved their buildings into Grafton or Minto. Although Acton remained an active village for at least another 20 years, it had lost its importance as a transportation, commercial, and social center (Hoenke,

personal communication).

Another factor affecting the rapid settlement of the Dakotas was the land itself. Most of the immigrants who were attracted to the region were either farmers or persons who intended to become farmers. "By 1879 there was little free land in the eastern states as desirable for farming as that of Dakota" (Briggs 1930:80). The land, particularly in the Red River Valley, was level, free of rocks, and ready to plow. It was ideal for large-scale farming.

During the 1880's most of the immigrants came from Germany, Scandinavia, Great Britain, and Ireland, but by the later 1890's, most immigrants came from eastern, southern, and central Europe (Luebke 1977:407; Holmquist 1981:3). "The most important single cause that impelled people to leave Europe was economic" (Luebke 1977:408). Since landowners were highly respected in Europe, the prospect of owning land on the American Great Plains as a result of the Homestead Act of 1862, was overpowering for many European peasants. In order to qualify for a free 65 hectare (160 acre) farm under this act, a homesteader had to live on his claim for at least five years and cultivate it. In addition, he had to be a citizen or he had to take out his first papers for naturalization (Luebke 1977:409).

Most European immigrants arrived on the Great Plains as family units. Relatives and neighbors usually followed later. However, formal colonization was carried out by ethno-religious societies and the railroads which had ten mile wide strips of alternating sections of land for sale on both sides of their rights-of-way. Sometimes, large colonies of immigrants came as the result of highly organized programs. Although less organized in their efforts, the various churches were also important in the settlement of the Great Plains. As a result of these colonization efforts, the various ethnic groups were able to retain their own religion, language, and culture (Luebke 1977:407,410-411).

Most homesteaders in eastern Pembina County seem to have come from England or Scotland via Canada, specifically Ontario. Sherman (1983) refers to these people as Anglo-Ontarians. Eastern Walsh County, along the Red River, was settled predominantly by Poles. Speaking of northwestern Minnesota, eastern North Dakota, and southern Manitoba, Rubinstein (1981:121-122) suggests that many of the homesteaders, no matter what their nationality or ethnic background may have been, were only concerned with gaining title to a farm of their own. The only prerequisites were that the farmland had to be rich and full rail service had to be available. The primary motive for British emigration was economic, lack of opportunity at home. In the 1870's, many Canadians from Ontario began moving westward to homesteads in Manitoba. Since many of these settlers journeyed westward by way of American railroads, they ultimately had to travel

through the Dakota-Minnesota portion of the Red River Valley with its ideal farmland. Consequently many of these settlers never made it to Manitoba. In addition, Anglo-Ontarian settlers were actively encouraged by American railroad agents and land agents to homestead in Dakota (Sherman 1983:100).

"North Dakota's largest Polish settlement is in Walsh County" (Sherman 1983:114). The first Poles began arriving in the mid-1870's. Many Poles were brought to the Great Plains as the result of church-related colonization programs. The soil and terrain of the Red River Valley in Walsh County was highly favorable for a farming colony (Sherman 1983:114). It was believed that they could succeed more easily in a rural situation as opposed to an urban situation and still retain their ethnic language and customs (Luebke 1977:419).

A large concentration of people with Polish ancestry is present within the project area in Walsh County along the Red River and around Warsaw. The Catholic heritage of these people was noted in two instances during the course of the field survey. A white painted wooden cross erected in 1910 (Fig. 11b) was observed near the highway along the drive leading to the abandoned farm house and outbuildings of farmstead number 244. A small white chapel, built in 1907 (Fig. 11a), is located in the southeast corner of farmstead number 230. A local informant, Frank L. Ebertowski, said that an outdoor Mass, attended by a large number of people from the surrounding area, is celebrated at the chapel once a year to pray for good crops, good weather, etc.

Conclusion

The junction of trade routes from the east, north and south, the contiguity of prairie and woodland ecotones, and the availability of fertile land encouraged the varied historical activity in the Red River Valley. American Indians, metis, fur traders, farmers, and commercial-industrial settlers utilized the natural resources provided in the area.

Since the processes involved in the fur trade conflict between competitive groups recurred in numerous areas across the United States, it is not unique to only the study area. Its location on what became the border between two countries was exploited as a gateway through which trade goods were passed, legally and illegally, by several different transportation systems. The cart trails and carts used on the Red River trails were a unique transportation system used only in the Red River Valley. Because the Red River of the North flows through lands once known as the heartland of the fur trade, any site with possible fur trade associations should be carefully evaluated.

The fact that little examination of this region has apparently been done by historians is surprising. The local histories available, although well-meaning, should not be



a



b

Figure 11. a. Photograph of Chapel at farmstead number 230, looking north.
b. Photograph of cross at farmstead number 244, looking north.

considered valid, well-documented sources. Further historical survey of newspapers, manuscripts and census records should be conducted before a valid history of this specific study area can be considered completed.

Chapter 4

Field and Laboratory Methods

Introduction

Initial work began during the first week in May with a search of pertinent historical literature at the I.D. Weeks Library on the University of South Dakota campus in Vermillion, South Dakota. With the completion of the initial literature search, the historian traveled to the North Dakota State Historical Society to examine records and newspapers pertinent to the project domain. Persons contacted at the North Dakota State Historical Society include Chris Dill and Forrest Daniel.

Site files were examined at the Archaeological Division for both historic and prehistoric sites. There were 40 sites recorded in Pembina County and 24 sites recorded in Walsh County. At the Historical Society Library, the historian examined microfilm copies. This library also contained most of the local histories cited in the References Cited as well as the early atlases.

The original U.S. General Land Office survey maps were available at the North Dakota Water Commission Office, and were used for locating historic sites, trails, and examining late 19th century vegetation patterns. Sites recorded during the levee survey are plotted on these maps (Figs. 13, 17, 20, 25, 28, 30 and 36).

Meanwhile, concurrent with the historian's initial literature searches, the Principal Investigator examined reports concerning previous archaeological investigations in the project area. An archaeological field crew was selected. The crew members were Kenneth Brown and Marie Brown of The University of South Dakota Archaeology Laboratory.

During the second week of May, the archaeology field crew drove to the project area and met with the historian who had been in Bismarck, North Dakota. The historian provided the archaeology crew with information about historic site locations within the project area. The historian continued local literature and records searches at the Pembina County Courthouse in Cavalier, and the Walsh County Courthouse in Grafton. For the most part, these local institutions did not offer materials other than those available at the State Historical Society, with the exception of personal collections held by the Pembina County Auditor and the Pembina County Register of Deeds. Additional institutions at which records were examined include: the Manitoba Museum of Man and Nature in Winnipeg, Manitoba, Canada; the Walsh County Historical Society; the Pembina County Historical Society; the Pembina County Museum at Cavalier; the Pembina State Museum and Park at Pembina; and the Carnegie Regional Library at Grafton.

The most important field work conducted by the historian within the local survey area was the contacting of local informants. The local informants interviewed by the historian for historical information were: Ervin Schumacker, Herbert Stewart, and Kenny Gardner of Drayton; Louise Hoenke of Grafton; Edythe Christenson of Bowesmont; Alvin and Violet Warner, Katherine Grube and Jenny Turner of Pembina; and William Sturtaugson of Cavalier. The archaeology crew contacted three local artifact collectors, Clarence Walski, Allan Kirkeby, and Salvin Popowski, in order to examine their collections and gain knowledge of the variety and scope of prehistoric occupation of the region. This was done by examining culturally and temporally diagnostic artifacts such as pottery and projectile points. The main collector contacted who had artifacts from the project area was Clarence Walski. Many farmers reported collecting isolated projectile points and grooved mauls, but none were avid collectors.

Field Reconnaissance

Concurrent with interviewing local informants, the archaeology crew began conducting a 15 percent, stratified, random sample of the 314 farmsteads. A single crew consisting of two persons conducted the field work.

The field methods used in the sampling phase of the project involved a statistically valid design. The 15 percent sampling design employed with the 314 farmsteads consisted of a stratified, random sample. The project area was divided into three physiographic ecological communities. The three communities are: (1) the Red River of the North environs; (2) the environs of major tributaries of the Red River of the North; and (3) the flat lands. Farmsteads located within 0.5 mile (0.4 kilometer) of the Red River of the North and/or its major tributaries were considered as belonging to their respective physiographic community. Farmsteads located greater than 0.5 mile (0.4 kilometer) from major drainages were considered as belonging to the flat lands community.

A recent survey along the Red River in Norman County, Minnesota, confined its survey investigations to areas thought most likely to have prehistoric occupations. This included the floodplains immediately adjacent to the river and the area extending 0.2 to 0.4 kilometer (one-eighth to one-fourth mile) eastward. Survey transects at 25 meter intervals and placing 30 cm deep shovel tests at 25 meter intervals in wooded areas resulted in locating 41 sites and find spots with Late Woodland and/or historic occupations (Michlovic 1982b:53). Because of the positive results of this survey, the 314 farmsteads were divided into their appropriate physiographic community. Because Michlovic (1982b) did not survey along any tributary streams, the present levee survey provided the opportunity to examine selected parts of tributaries to determine whether prehistoric peoples focused

their activities along these streams. It may also provide a relative measure of significance between the utilization of tributaries versus the Red River.

The farmsteads, having been numbered by personnel with the St. Paul District, U.S. Army Corps of Engineers, were assigned their corresponding numbers within each of the three physiographic communities (Tables 10 to 12). Next, a 15 percent, random sample of farmsteads within each of the three physiographic communities was made. The random samples were selected by extracting assigned farmstead numbers from a well agitated canister for each of the three stratified areas. This type of sampling provides necessary information for evaluating the degree of randomness, or lack thereof, of site locations. It also provides information suitable for predicting site densities and probable locations.

Tables 10 to 12 list the farmsteads (according to numbers assigned by the Corps of Engineers) within each physiographic community and those farmsteads selected within the 15 percent, random sample. A total of 87 farmsteads are within the sub-area designated as the Red River of the North. A random, 15 percent sample of the 87 farmsteads yielded a sample size of 13. A 15 percent sample of a total of 80 farmsteads within the sub-area designated as the Tributaries yielded 12 farmsteads. Finally, a total of 147 farmsteads are located within the sub-area designated as the Flat Lands. A 15 percent, random sample yielded 22 farmsteads to be intensively investigated. Therefore, a total of 47 farmsteads were selected for field examination.

Two techniques were employed in conducting the field survey: (1) crew members were spaced 15 to 20 meters apart, traversing the lands adjacent to residences and farm buildings. Because the exact location of proposed ring levee construction was not known at the time of the survey (Scope of Work, Section 3.03, p.2), areas surveyed included a strip of land 80 to 100 meters wide circumventing each farmstead. The actual acreage traversed depended upon the size of each individual farmstead; and (2) digging small, circular shovel test pits to depths of about 30 cm at about 20 meter intervals in areas where vegetation cover was more than 25 percent. Soils were dry sifted through one-fourth inch hardware cloth. The first technique was used in all cultivated fields. The second technique was only used in pastures and other non-cultivated lands as well as at sites with discernible surface scatters.

While digging the shovel test pits, soils were examined to detect any change in texture which might have been indicative of soil stratigraphy. Shovel test locations were recorded on field maps. Individual shovel test results were recorded on testing forms only if there was any discernible stratigraphy other than the plow zone and/or they resulted in the recovery of cultural remains. Nothing was found in shovel

Table 10

Farmsteads Within the Red River of the North Sub-Area and
Those Farmsteads Selected Within the Stratified Random Sample

35	138	208
36	146	209*
37	147	229
46	150	230
47	151	231
48	152	232
52	155	233*
53	156	234
59	157	235A
60*	163	235B*
61	164	236*
65	165	237
66	166	262
67	167*	263
72	171	264
73	175	272
74	176	273
75	177	274
83	178*	275*
84	179	285
85	185	286*
94	186	287
95	187	288
109	188	289
126	189	300
131	204	301
132	205	302
133*	206*	303*
136*	207	304

* = farmsteads selected for 15 percent sample survey

Total farmsteads = 87

15 percent sample = 13

Table 11

Farmsteads Within the Tributary Sub-Area and Those
Farmsteads Selected Within the Stratified Random Sample

10	44	246
11	158	247
13	159	248
14	160	249*
15	161	250
18	162	251
19	202	252
21	203	253*
22*	210	254
22A*	211	255
23	213	256
24*	218	260
25	219	261
26	220	268
27	221	269*
28	225	270
29	226	271
30	227	276
31	228	277
32	238	278*
33*	239	283
34	240	284
39	241	290
40	243	290A*
41	244*	298
42*	245*	299
43		305

* = farmsteads selected for 15 percent sample
 Total farmsteads = 80
 15 percent sample = 12

Table 12

Farmsteads Within the Flat Lands Sub-Area and Those
Farmsteads Selected Within the Stratified Random Sample

1	86	127	198
2	87*	128	199
3	88	129*	200
4	89	130	201
5	90	134	212
6	91	135	214
7	92	137	215*
8	93	139	216
9	96	140	217*
12	97	141*	222
16	98	142	223
17	99	143	224
20	100	144	242*
38	101*	145	257
45	102	148	258*
49	103*	149	259
50	104	153	265
51	105	154	265A
54	106	168	266
55	107	169*	267
56	108*	170	279*
57	110	172*	280
58*	111	173	281
62*	112	174	282
63	113	180	291
64*	114*	181	292
68	115	182	293
69	116	183	294
70*	117	184	295*
71	118	190	296
76	119	191	297
77	120	192	306
78	121	193	307
79	122	194	308*
80	123*	195	309
81*	124	196	310
82	125	197	

* = farmsteads selected for 15 percent sample

Total farmsteads = 147

15 percent sample = 22

tests, therefore, no forms were filled out. The plow zone at all locations tested varied between 17 cm to 22 cm. This procedure allowed more time to examine river banks for buried cultural remains near farmsteads and confirm the locations of potentially important sites which were associated with and/or were nearby other farmsteads which were not within the selected 15 percent, stratified, random sample. This procedure permitted the time necessary to confirm the locations of six additional sites and examine one potential site lead which otherwise would not have been reported during the course of conducting strictly the 15 percent, stratified, random sample survey.

When artifact scatters were encountered, five shovel tests were made at each suspected archaeological site and/or scatter of historic material. First, a surface grab sample of artifacts was made, to delineate the surface extent of each site. Then, one shovel test was made in what was believed to be the center of each surface scatter and four subsequent shovel tests were made at the peripheral edges of the surface scatter according to the cardinal directions, (i.e., one at the north, east, south, and west edges). This procedure was followed because previous research indicates the lateral displacement of artifacts due to plowing may not be as great as is sometimes supposed. In areas of intensive agricultural activity, such as the Red River Valley, the surface scatter of artifacts should be a reliable indicator of subsurface distributions if three conditions are met: (1) downhill transport is minimal or nonexistent; (2) cultural disturbance other than agriculture has not occurred; and (3) alluviation is at a minimum (Roper 1976).

In the levee project survey, downhill transport of artifacts is virtually nonexistent due to the topography of the Red River Valley. Cultural disturbance by activities other than agriculture is probably minimal, since areas surveyed around the perimeters of farmsteads rarely resulted in finding historic debris. The third condition, alluviation, has occurred to a lesser or greater extent along portions of the Red River. Therefore, the potential for buried cultural frequently buried cultural horizons exists in specific flood prone areas along the Red River (i.e., within river meanders opposed to higher terraces with relatively stable surfaces; see Chapter 6).

Six sites were recorded during field reconnaissance of the 15 percent sample of 314 farmsteads. In addition, six sites and one site lead were examined and recorded as the result of information obtained from interviews with local informants. This phase of the field work was completed on May 17, 1983.

Procedures followed during all field reconnaissance included plotting all site locations on 7.5 minute U.S.G.S. quadrangle maps, showing the extent of the site areas. All

sites were recorded on North Dakota site inventory forms and sent to the North Dakota State Historical Society. All sites were photographed.

Concurrent with the field reconnaissance by the archaeology crew, the historian continually provided new findings from the local records searches. The archaeology crew, in turn, provided locations of sites with historic remains to the historian for investigation in the courthouse records. This procedure of information "feedback" between the archaeologists and historian proved invaluable. The historian completed the local records searches and informant interviews on May 18, 1983.

Laboratory Methods

Artifacts were transported to The University of South Dakota Archaeology Laboratory in Vermillion, South Dakota. Laboratory work was begun during the first week in June, 1983, and completed during the third week in June, 1983. Artifacts were washed and catalogued. Site numbers were printed on all artifacts. Analyses included detailed examination of all artifacts to determine probable function, temporal placement, and cultural affiliation. Faunal remains were identified to the lowest possible taxon and were examined for the presence of butcher marks.

Artifact Typologies

Introduction

The following typologies contain information pertinent to cultural and historical significance. Artifact types are defined relative to their known cultural and historical associations. The typologies are divided into four groups: (1) prehistoric chipped stone artifacts; (2) prehistoric pottery; (3) historic artifacts; and (4) faunal remains.

Prehistoric Chipped Stone Artifacts

The first human inhabitants of North Dakota had a well-developed technology to modify stone into usable implements for all aspects of subsistence and survival. Reducing an initial mass of rock (lithic) material to the finished product requires many stages of manufacture, each of which produces waste. Knowledge of the techniques utilized by different cultures in making stone implements is of great importance in the study of past cultures. Certain cultures used specialized techniques in manufacturing some of their stone implements which is helpful in determining the cultural association and temporal placement of the artifacts. Modifications of stones by the application of force, known as flintknapping, was one of the earliest industrial arts of humans.

Differences observed between stone implement modification, or chipping, are sometimes related to the type of raw material utilized. The shape and use of the artifact

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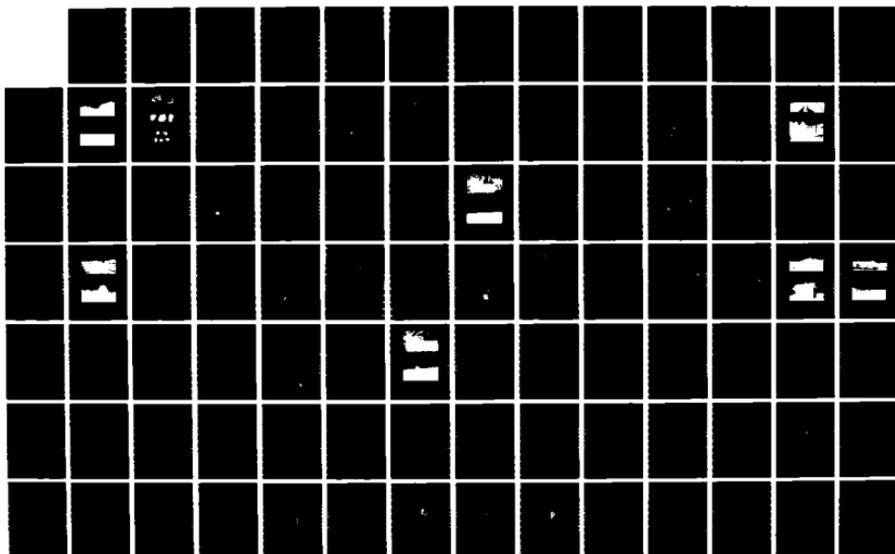
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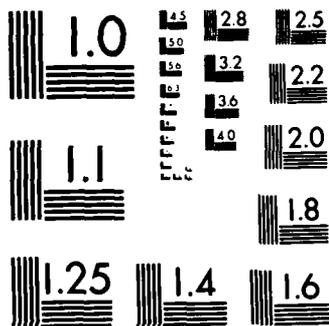
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MICROCOPY RESOLUTION TEST CHART
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is determined by the quality of the raw material and the skill of the individual flintknapper. Flint, chert, chalcedony, volcanic glass (obsidian), quartzites, and silicified sediments were widely used by the indigenous peoples of North Dakota for making stone implements. All have the necessary homogeneity, cryptocrystalline, macrocrystalline and highly siliceous properties which allow for controlled flintknapping. The raw material must be free of flaws, such as cracks and inclusions, or it will break unpredictably. One test of homogeneity is to strike the piece of raw material with a hammerstone. If it produces a ringing sound, it denotes homogeneity, but if it emits a dull thud, it is not homogenous.

Many lithic raw materials can be improved for modification by thermal alteration or heat treating (Crabtree and Butler 1964; Hester 1972, 1973; Hester and Collins 1974; Purdy and Brooks 1971; Purdy 1974; Shippee 1963). Heat treating is performed by burying the raw material in sand or soil and slowly heating it to temperatures between 400 degrees and 700 degrees Fahrenheit. The material is then slowly cooled. Heat treating relieves stresses in the stone and allows more controlled flaking. Heat treating often causes color changes in the raw material; for instance, yellow sometimes changes to red. Heating a rock with a high moisture content too rapidly can cause fractures and the removal of small, round, flake-like "pot lids".

Lithic Resource Utilization

Five types of lithic resources were identified within the collection of flakes, shatter, and stone tools recovered from the project area. The following is a brief description of the lithic types utilized by the prehistoric inhabitants of the region.

Tongue River Silicified Sediment

Tongue River silicified sediment occurs as a primary source in northwest South Dakota. Gravel deposits along the Grand River also contain this material and, since the Grand River flowed east to the James River prior to the last glaciation, the material occurs further east in glacial deposits and stream gravels (Porter 1962; Anderson 1978; Ahler 1977).

Tongue River silicified sediment varies in grain size from extremely fine to medium or coarse sand. Color varies from a light olive brown (2.5 Y 5/4) to light yellowish brown (2.5Y 6/4) to weak red (10R 4/4) and dark reddish brown (2.5YR 3/4). Results of heat treating experiments indicated the material turns a reddish color. Large pieces of Tongue River silicified sediment contain root and stem holes of all sizes. The material is extremely tough and resists weathering (Porter 1962; Anderson 1978; Ahler 1977).

Knife River Flint

Knife River Flint is a distinctive dark brown rock. The geologic source of this flint has been questioned in recent years. Knife River Flint was quarried from sources in the Knife River Valley in Dunn and Mercer counties, North Dakota. The material contains some irregular light and dark beds and lenses. It sometimes is mottled. It occurs as large boulders, small cobbles, and tabular chunks. Color varies from very dark brown (10YR 2/2) to thin, translucent flakes of lighter brown (10YR 3/3, 10YR 5/3). Weathering results in a light gray or white (10YR 7/2) patina (Clayton, Bickley, Stone 1970; Ahler 1977).

Quartzite

Quartzites recovered from the area are characterized by great heterogeneity in grain size and color. Color is usually light gray, blue-gray, or pink. The stone occurs in the glaciated regions of North Dakota.

Chert

Cherts recovered from the region are medium grained to microcrystalline in texture. Color varies from bright red to white and yellow. Colors are oftentimes banded. Chert boulders and cobbles occur within the glaciated regions of North Dakota.

Quartz

Quartz occurs in the glaciated regions of North Dakota. It is usually white to opaque in color and breaks in an uneven manner.

The following are descriptions of prehistoric chipped stone artifact types collected during this project.

FLAKES

Definition: Any piece of chert, flint or lithic raw material which has been removed from a larger mass by the application of force and which has at least one of several distinguishing characteristics present: (1) a striking platform remnant; (2) compression rings; (3) a bulb of force; and (4) a hinge fracture. Flakes which are less than 3 cm in length along the axis of force are sometimes referred to as chips. Chips are often removed by a pressure flaking technique.

Potential errors: Flakes are usually easily recognized.

Cultural-historical position: Flakes are associated with all prehistoric complexes in North Dakota.

Research value: The presence of a large number of flakes at a site would indicate the location of extensive stone tool manufacture.

CHUNKS/SHATTER

Definition: Any piece of chert, flint or lithic raw material which is cubical or irregularly shaped and lacks any well-defined pattern of negative or positive bulbs of force, striking platforms, or systematic alignment of cleavage scars on the various faces (Binford and Quimby 1963).

Potential errors: Chunks/shatter may be confused with cores.

Cultural-historical position: Chunks/shatter are associated with all prehistoric complexes in North Dakota.

Research value: The presence of a large number of chunks/shatter would indicate the testing of raw materials which may be associated with extensive stone tool manufacturing.

The implements described above can be further modified. Since flintknapping modified the blank from which the tool originated, it is often difficult or impossible to determine the type of blank from which a tool was manufactured. This is especially true of implements modified (retouched) on both faces, such as preforms, projectile points, knives and drills. The following implement types may be marginally retouched or invasively retouched. Invasive retouch is the by-product of flake removal originating from the lateral edges of a blank and extending more than one-half of the way across the dorsal and/or ventral faces of the blank. When modification occurs on both faces of a blank, it is referred to as a biface or bifacial retouch. Marginal modification is the by-product of flake removal originating from the lateral edges of a blank and extending less than one-half of the way across the dorsal and/or ventral faces of the blank.

RETOUCHED FLAKES

Definition: A flake which has either a combination of marginal or invasive modification along one or more of its lateral edges or ends.

Potential errors: Retouched flakes may be confused with flakes which have been damaged by recent activities at the site, such as modern agricultural practices.

Cultural-historical position: Retouched flakes are associated with all prehistoric cultural complexes in North Dakota.

Research value: The presence of a large number of retouched flakes may indicate the maximum use of available raw materials.

PROJECTILE POINTS

Definition: A flake or unidentifiable modified blank which has marginal and/or invasive modification on one or both faces. The form is triangular to lanceolate in shape with a well-defined working edge, sharp tip, or point, and a hafting element. Retouch is produced by percussion and pressure flaking techniques. The hafting element may consist of side-notches, corner-notches, stems, and/or basal notches, flutes, and unnotched, ground bases. Projectile points are usually biconvex in cross section and have a wide variation in form and size.

Potential errors: Projectile points may be confused with knives.

Cultural-historical position: Projectile points are believed to be associated with all prehistoric cultural complexes in North Dakota.

Research value: The varieties of projectile points are good temporal and cultural indicators of a site.

BIFACE/KNIVES

Definition: A preform which has marginal and/or invasive retouch on both faces. There is a well-defined working edge and/or areas of utilization. Retouch is produced by percussion and pressure flaking techniques. Knives occur in a variety of geometric forms, the most common being rectangular and sub-triangular. They are usually biconvex in cross-section with two lateral cutting edges. Broken projectile points were often recycled and used as hafted knives.

Potential errors: Triangular, notched knives are often confused with projectile points. One method to distinguish between hafted knives and projectile points is to determine the sharpness of the tip and edge characteristics of the blade. Projectile points, in order to be successfully employed in procurement activities, must have a sharp point or tip. Knives generally have blunted tips. Projectile points are most commonly biconvex in cross-section while knives are more varied, with alternating resharpening along the lateral edges forming a trapezoidal cross-section.

Cultural-historical position: Knives are associated with all prehistoric cultural complexes in North Dakota. Particular knife forms have specific names and some have a restricted temporal occurrence.

Research value: Knives are indicative of cutting tasks.

ENDSCRAPERS

Definition: A flake which has been marginally or invasively retouched on one face to produce a regularly shaped straight-to-convex working edge on one end which is usually transverse to the axis of force.

Potential errors: Endscrapers may be confused with retouched flakes.

Cultural-historical position: Endscrapers are associated with all prehistoric cultural complexes in North Dakota.

Research value: Endscrapers are probably specialized maintenance implements used in hide preparation and the working of wood and bone.

SIDE SCRAPERS

Definition: A flake or other blank type with marginal or invasive retouch on one face to produce a regularly shaped straight-to-convex working edge on either one or both lateral sides of the implement. Retouch is usually parallel to the axis of percussion of the implement blank.

Potential errors: These may be confused with retouched flakes.

Cultural-historical position: Side scrapers are associated

with all prehistoric cultural complexes in North Dakota.

Research value: Side scrapers were probably used in hide preparation and the working of bone and wood.

Prehistoric Pottery

POTTERY

Definition: Any piece of prehistoric clay material which was formed into the shape of a pot or vessel and which was subjected to high temperatures to "fire" the clay into an aplastic form. Pots were used to cook and store food and other materials.

Potential errors: Pottery is easily recognized.

Cultural-historical position: Pottery is most frequently associated with Woodland and Plains Village cultures (A.D. 1 to 1850). The decoration and vessel forms are good temporal and cultural indicators.

Research value: The presence of pottery indicates a relatively late occupation of a site and the presence of food storage and preparation.

Historic Artifacts

PORCELAIN

Definition: An artificial mixture containing kaolin, ground flint, and feldspar which is baked at an extremely high temperature. The addition of powdered glass or bone ash allows a lower temperature for vitrification. It is a steel-hard, vitreous, non-porous, translucent ware.

Potential errors: It is usually easily recognized.

Cultural-historical position: Porcelain, although first produced in 8th century China, was not manufactured in any great quantity in the United States until after 1900. It was not made in Europe until the 18th century.

Research value: Since porcelain was never easy to make and has always been expensive, its presence in a site may indicate the high status and/or wealth of the occupants.

WHITEWARE

Definition: A series of refined earthenwares manufactured from a white-burning clay fired at a high temperature to produce an opaque body with a clear, colorless glaze. It includes white earthenware and ironstone. They range from non-vitreous to vitrified, from more-or-less porous to non-porous. White earthenware occurs in a variety of vessel forms and is decorated using a wide range of methods and motifs (e.g., transfer-print, decal, molded, hand-painted, etc.). Ironstone tends to be undecorated (Lofstrom et al. 1982; Price 1981).

Potential errors: Whiteware is easily recognized.

Cultural-historical position: While a colonial pottery is believed to have utilized white-burning clay in the 1680's, whiteware was not commonly produced until 1825 onward.

Research value: Whitewares were usually printed or impressed with a maker's mark after the Civil War. Identification of

these marks (e.g., Gates and Ormerod 1982; Godden 1964; Kovel and Kovel 1953) can help determine the time of site occupation and commerce patterns. Whenever possible, maker's marks are used for dating historic ceramics in the present study. It has been suggested that decorative techniques and motifs may be useful in dating historic sites of the circa 1810 to 1870 period (Lofstrom et al. 1982; Price 1981), but since the project area was not actively settled until the 1870's this dating technique has not been employed in the present study.

STONEWARE

Definition: A ware manufactured from a more or less white, fine-grained clay fired at about 2200 degrees Fahrenheit. It is steel-hard and non-porous. The exterior is often salt-glazed. The interiors are frequently covered with a dark-brown coating known as Albany slip. It is typically decorated with cobalt aluminate, a dark-blue pigment. Stoneware is usually in the form of crocks and jugs.

Potential errors: It is usually easily recognized.

Cultural-historical position: Stoneware was manufactured in the 18th century, but was mass produced in the mid-19th century. It suffered a decline in manufacture after 1875, but is still being produced.

Research value: Stoneware often bears a maker's mark. Identification of the mark can help determine the time of site occupation and commerce patterns.

BRICK

Definition: A material manufactured from surface clays. It is relatively soft and porous. It is usually rectangular in shape, with a width of four inches.

Potential errors: Brick is usually easily recognized.

Cultural-historical position: Bricks were manufactured during Euro-American settlement and are currently manufactured in large quantities for building material.

Research value: Bricks suggest the former presence of a house and/or chimney of a structure. They may also represent remains of foundations of structures.

BOTTLE GLASS

Definition: Any piece of curvilinear glass which appears to have been from a bottle container.

Potential errors: Bottle glass is usually easily recognized.

Cultural-historical position: The height of mold seams on bottle necks are indicative of the time of manufacture (Adams 1971; Santeford 1981). Identifiable maker's marks are also useful for dating bottles (e.g. Toulouse 1971). Complete bottles with content labels pressed into the glass are also datable (e.g. Baldwin 1973).

Research value: Glass bottles are sometimes good temporal indicators, but it is important to remember that the dates based on the height of mold seams are not necessarily precise when applied to the dating of historic sites. They are only meant to give general time references. Older style

molds were not immediately discarded with the introduction of new ones. As much as 10 to 15 years may have occurred between the introduction of new molds and processes and their general acceptance. In addition, bottles are reusable, thereby, extending their period of usefulness. Identification of bottle contents is sometimes possible.

WINDOW GLASS

Definition: Any piece of uniformly flat glass.

Potential errors: Window glass is easily recognized.

Cultural-historical position: Window glass is usually associated with Euro-American occupations.

Research value: Window glass is indicative of the presence of some form of building.

GLASS BEADS

Definition: Any piece of glass with a tubular and/or geometric form which has a hole through its center for the purpose of attachment to a metal or other form of 'string'.

Potential errors: Beads are usually easily recognized.

Cultural-historical position: Beads occur in proto-historic American Indian, historic American Indian, and Euro-American sites.

Research value: The occurrence of glass beads in a site is indicative of a proto-historic and/or historic occupation. Many styles of beads were manufactured for only a short period of time and are, therefore, good temporal indicators of site use.

METAL

Definition: Any piece of metallic material.

Potential errors: Metal is easily recognized.

Cultural-historical position: Most metal is of historic, Euro-American origin. Some metal, particularly copper, may be of prehistoric origin.

Research value: Metal fragments can oftentimes be identified as to the tool they are from and its function. They are indicative of historic and/or proto-historic occupations of a site.

Faunal Remains

FAUNAL REMAINS (Vertebrates)

Definition: The skeletal remains of any vertebrate animal (i.e., mammal, bird, fish, reptile, amphibian).

Potential errors: Faunal remains are easily recognized. Specific identification of animal remains may be difficult.

Cultural-historical position: Animal bones can occur in any prehistoric or historic site in North Dakota.

Research value: Faunal remains can be good, past-climatic indicators, as well as helpful in determining subsistence and butchering patterns.

Soil Types

The 12 sites and one site lead recorded during the field reconnaissance are associated with seven soil types as defined by the Soil Conservation Service. The following are brief descriptions of the seven soil types.

Bearden Silty Clay Loam (BnA)

The Bearden silty clay loam consists of deep, nearly level and gently sloping, poorly drained soil. These soils formed on moderately fine textured alluvium on glacial lake plains and beaches. Runoff is slow, and water collects in shallow depressions that remain wet during spring and periods of high precipitation. The water table is three to five feet from the surface during wet periods (Thompson and Hetzler 1977:12-13).

Cashel Silty Clay (CaA)

Cashel silty clays are deep, nearly level, poorly drained soils located on floodplains, terraces and abandoned stream channels. These soils formed in fine-textured recent alluvium. The native vegetation consists of deciduous forest (Thompson and Hetzler 1977:16).

Fargo Silty Clay (FfA)

Fargo silty clay soils are deep, poorly drained, and are frequently flooded. The water table rises to the surface or near the surface during wet periods. The native vegetation is medium and tall prairie grasses (Hetzler et al. 1972:31).

Fargo-Hegne Silty Clays (FhA)

Fargo-Hegne silty clay soils occur on natural levees along streams. About 60 percent of the soil is Fargo silty clay, 35 percent is Hegne silty clay, and 5 percent is other soils. The soils are frequently flooded by waters of the Forest and Red rivers. The soils are poorly drained. Natural vegetation consists of medium and tall prairie grasses (Hetzler et al 1972:31).

Hegne-Fargo Silty Clays (HmA)

The Hegne-Fargo silty clays consist of about 55 percent Hegne silty clay, 35 percent Fargo silty clay, and 10 percent other soils. The soils occur on the Glacial Lake Agassiz Plain where low ridges, nearly level areas, and shallow depressions form irregular patterns. The soils are deep, poorly drained, and contain a large amount of lime. The water

table is within three to five feet of the surface during wet periods. The native vegetation consists of tall prairie grasses and salt-tolerant grasses (Hetzler et al. 1972:39).

Wahpeton Soils
(WaA)

The Wahpeton soils consist of deep, moderately well-drained soils that have formed in recent alluvium. These soils occur on natural levees and on high bottom land along the Red River of the North. The surface layer is very dark gray silty clay about seven inches thick. A series of layers of dark gray silty clay that are the surface layers of buried soils occur to 53 inches in thickness. Vegetation consists of deciduous trees, shrubs and tall prairie grasses (Hetzler et al. 1972:57).

Chapter 5

Site Descriptions

The following are the site descriptions and associated artifacts recorded during this project. A site is defined as the locus of past human activities which can be delineated by the presence of cultural features (houses, storage pits, hearths, ditches, mounds, etc.), and/or cultural artifacts (tools, debris). A find spot is defined as an isolated find of a single tool or artifact. Site numbers are assigned according to the Smithsonian trinomial numbering system. The "32" in the designation is for the state of North Dakota. The letters "PB" and "WA" designate Pembina and Walsh counties, respectively, and the last numerical digits refer to the sequential site numbers recorded within each county.

32PB41

<u>Legal Location</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
NW¼ SE¼ NW¼	24	159N	51W
Farmstead Number		136	
Map Quad		Drayton	
Type of Remains		lithic and ceramic scatter	
Distance from Farmstead		150 meters north	
Elevation		242 meters	
Vegetation		none, plowed	
Estimated Size		3,750 square meters	
Surface Visibility		100 percent	
Topography		terrace	
Distance to Nearest Water		125 meters	
Soil Association		BnA, Bearden silty clay loam	
Cultural Affiliation		prehistoric, Woodland	
Approximate Site Measure		55 meters E-W, 70 meters N-S	

Description

Site 32PB41, which was found by the survey team, is located in a cultivated field on the T1 (second terrace) west (left bank) of the Red River (Figs. 12, 13 and 14a). The site has a very thin scatter of lithics and ceramics, less than one item per 312 square meters. Shovel tests did not yield additional data. Although the site is situated on the outside edge of a meander of the Red River, examination of the T1 edge did not reveal any evidence of extensive site erosion and/or deeply buried cultural components. The few small fragmentary pieces of ceramics recovered from the site are not large enough to make a definite identification of cultural affiliation. The site can only be assigned to a Woodland occupation. An interview with the landowner did not yield any further information. The landowner, who had lived at the present residence for a long number of years, did not report ever having found any artifacts at the site location.

PREHISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>
Flake	3	2 Knife River Flint, 1 chert
Shatter	1	chert
Pottary (Fig. 15a)	6 body sherds	crushed granite temper, 5 smooth (plain) exteriors; 1 eroded exterior

FAUNAL REMAINS

<u>Taxon</u>	<u>Element</u>	<u>Quantity</u>	<u>Side</u>	<u>Condition</u>	<u>Cut</u> <u>Marks</u>
Freshwater mussel	shell	2	-	frags.	-

Drayton Quad
T159N, R51W

Farmstead
136

32PB41

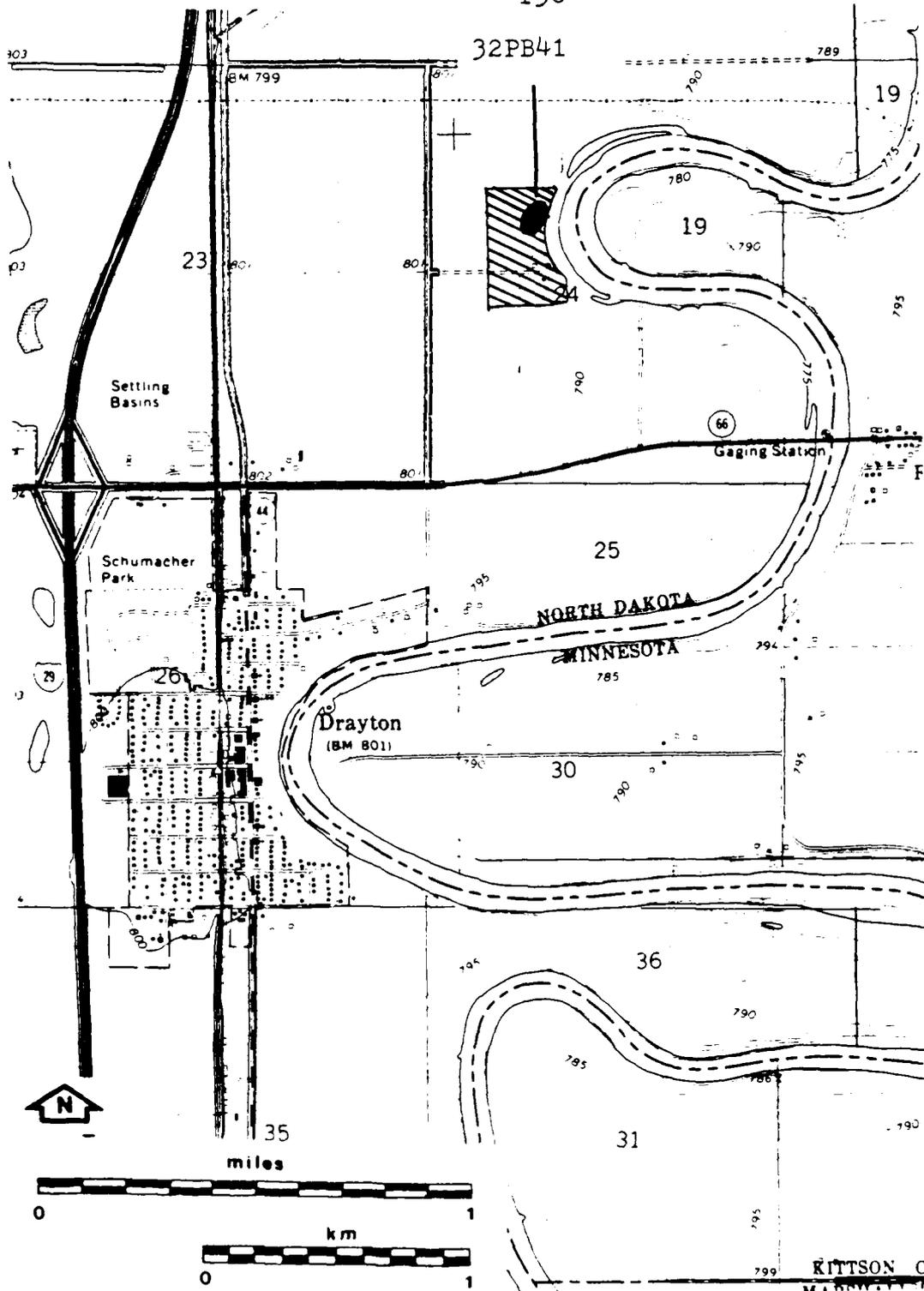


Figure 12. Map 1. Topographic map showing the location of site 32PB41

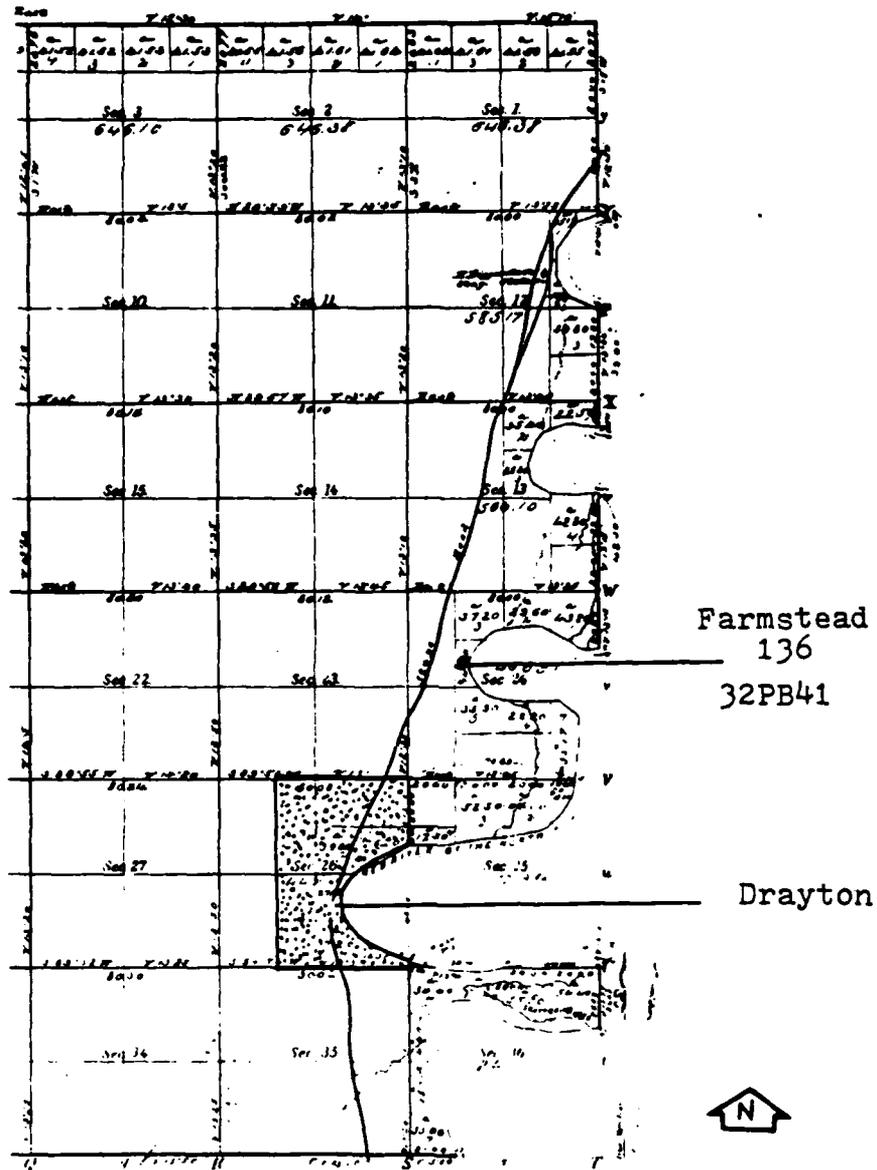


Figure 13. General Land Office Map, T159N, R51W, ca. 1873.

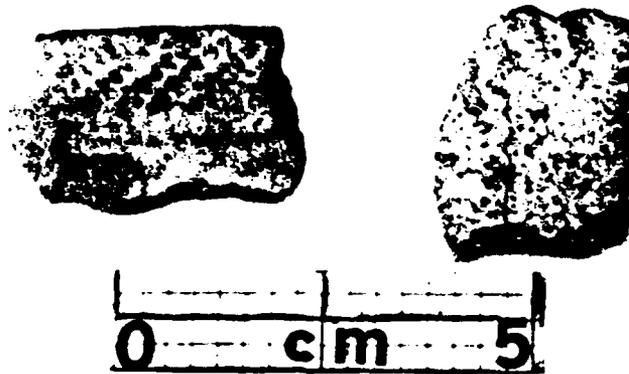


a

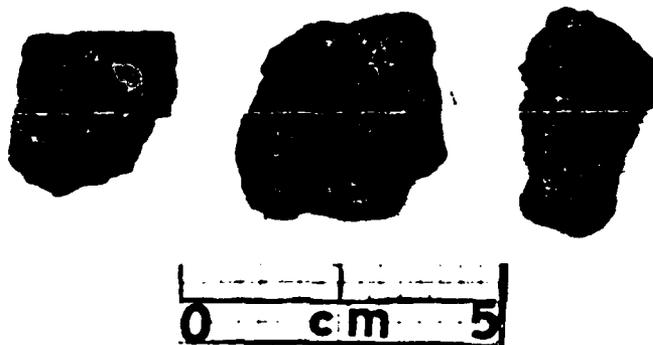


b

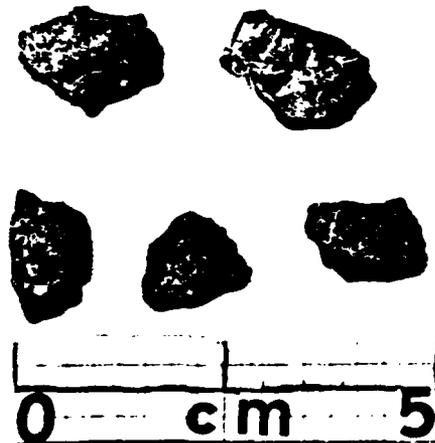
Figure 14. a. Photograph of site 32PB41 looking north.
b. Photograph of site 32PB42 looking northeast.



a



b



c

Figure 15. a. Pottery from site 32PB41.
b. Pottery from site 32PB42.
c. Pottery from site 32PB47.

Recommendations

Site 32PB41 has a prehistoric Woodland occupation. Shovel tests did not yield additional data. However, negative results should not necessarily refute the possible existence of in situ deposits. Therefore, it is recommended that the site be considered potentially significant until further investigations are conducted. The site, being located 150 meters north of the residence, may or may not be endangered by proposed levee construction. The site may be avoided by building the north segment of the ring levee closer than 150 meters to the house to avoid site disturbance.

32PB42

<u>Legal Location</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
SE¼ SE¼ SE¼	34	163N	51W
Farmstead Number	48		
Map Quad	Pembina		
Type of Remains	lithic and ceramic scatter		
Distance from Farmstead	450 meters southwest		
Elevation	239 meters		
Vegetation	none, plowed		
Estimated Size	16,875 square meters		
Surface Visibility	100 percent		
Topography	terrace		
Distance to Nearest Water	400 meters		
Soil Association	WaA, Wahpeton silty clays		
Cultural Affiliation	prehistoric, Late Woodland		
Approximate Site Measure	55 meters E-W, 300 meters N-S		

Description

Site 32PB42, which was reported to the survey team by a local informant, is located in a cultivated field near the edge of the T2 (third terrace) west (left bank) of the Red River. The terrace is well defined and is approximately ten meters above the river (Figs. 16, 17 and 14b). The site is on the outside of a meander of the Red River. The site consists of a thin scatter of lithics and ceramics. The density of cultural remains is less than one item per 993 square meters. Examination of the edge of the T2 did not reveal any evidence of more deeply buried cultural components. Shovel tests did not yield any additional data. It is reported by a local informant that the site is well-known and local artifact collectors collect artifacts from it on a regular basis. This may account for the low surface density of artifacts on the site. Pottery collected is assigned to Blackduck ceramic ware, which is attributed to occupations dating from A.D. 800 to A.D. 1400 (Anfinson 1979:23-37).

PREHISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>
Endscraper*	2	chert
Flake	5	3 chert, 1 quartzite 1 Knife River Flint
Shatter	5	3 chert, 1 Tongue River silicified sediment, 1 quartzite
Pottery	1 rim*	crushed granite temper
	4 body sherds	crushed granite temper; 2 cordmarked 1 smooth (plain), 1 dentate stamped

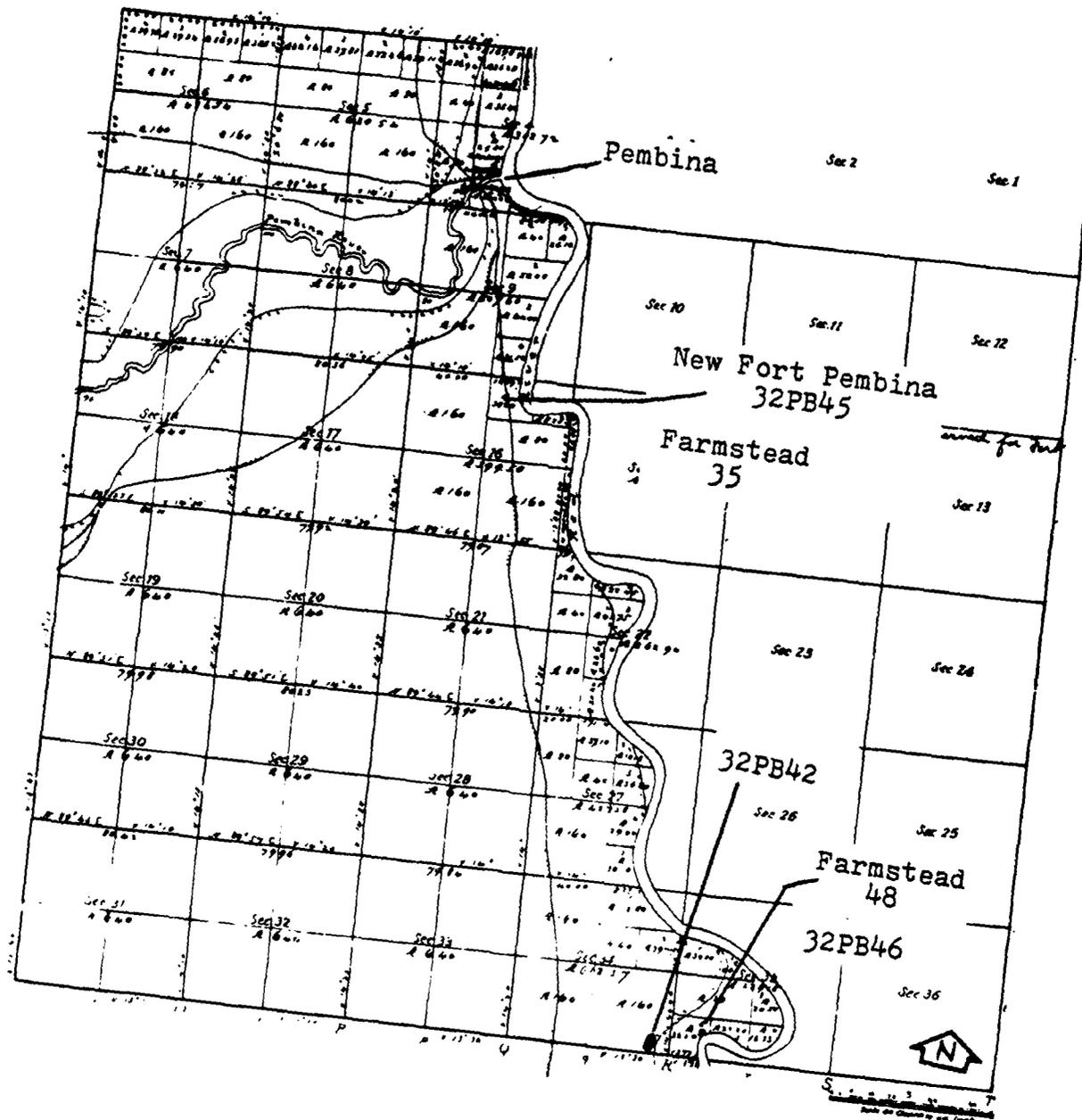


Figure 17. General Land Office Map, T163N, R51W, ca. 1867.

Artifact Descriptions

Endscraper

Specimen S-1 (Fig. 18a) is a complete endscraper made of black chert. The lateral edges are straight to slightly convex and converge toward the proximal end. The distal edge is convex. The specimen is plano-convex in cross-section. The entire dorsal surface has been invasively modified. The distal edge exhibits use-wear in the form of rounding and step fractures. The specimen measures 29.7 mm long, 23.3 mm wide, and 6.1 mm thick.

Specimen S-2 (Fig. 18b) is a chert endscraper. The proximal end is broken. The lateral edges are parallel. It is plano-convex in cross-section. Modification occurs only as marginal retouch along the working edge (distal end), which is diagonal to the long axis of the tool. The specimen measures 34.3 mm long, 22.0 mm wide, and 10.7 mm thick.

Pottery

Specimen S-13 (Figs. 15b and 18c) is a rim sherd. The rim is flat and exhibits close parallel rows of diagonal cordwrapped stick impressions. In addition, the interior rim, directly below the lip, is decorated with short, more widely spaced, parallel rows of nearly vertical cordwrapped stick impressions. The exterior surface exhibits close, parallel rows of diagonal cordwrapped stick impressions directly below the lip. This is followed by almost vertical brushing or combing. Directly below this is located widely spaced, parallel rows of diagonal cordwrapped stick impressions. The specimen is tempered with crushed granite. Based on these decorative elements and motifs, the specimen is assigned to Blackduck ware, dating from A.D. 800 to A.D. 1400 (Anfinson 1979:23-37).

Recommendations

Site 32PB42 contains cultural remains which may help elucidate human occupation of the region at about A.D. 800 to A.D. 1400. Shovel tests did not yield additional data, but these negative results should not refute the possibility of in situ remains. Therefore, it is recommended that the site be considered potentially significant until further investigations are conducted. However, because the site is not associated with any particular farmstead (the nearest being number 48), it is probably not in danger of being adversely affected by proposed ring levee construction.

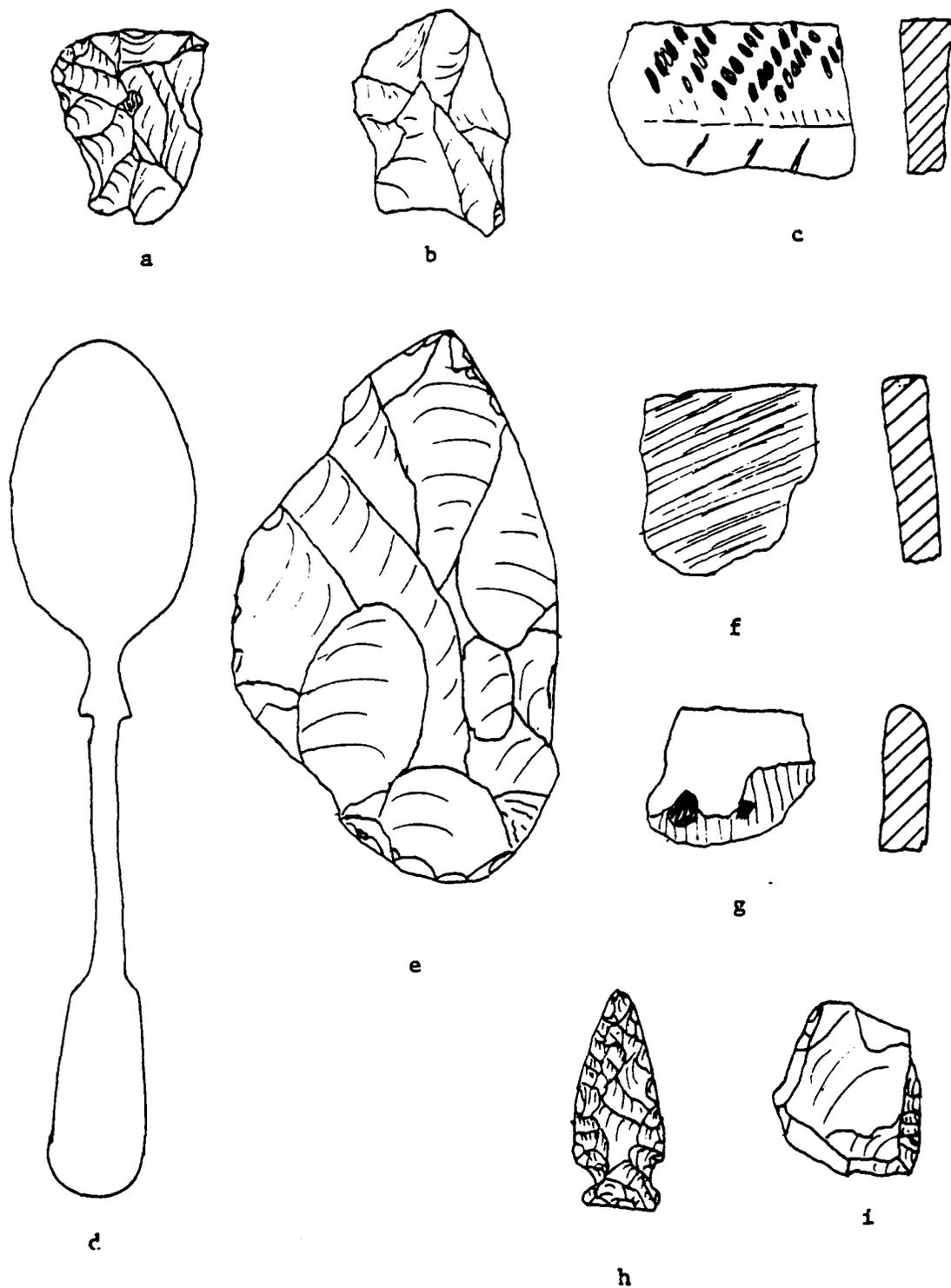


Figure 18. a. endscraper (32PB42); b. endscraper (32PB42); c. rim sherd (32PB42); d. silver spoon (32PB43); e. knife/biface (32PB47); f. rim sherd (32PB47); g. rim sherd (32PB47); h. projectile point (32WA8); i. side scraper (32WA8).

32PB43

<u>Legal Location</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	14	162N	51W
NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	13	162N	51W

Farmstead Number	60
Map Quad	Joliette
Type of Remains	glass, brick, metal, flake
Distance from Farmstead	300 meters northeast
Elevation	241 meters
Vegetation	none, plowed
Estimated Size	5,000 square meters
Surface Visibility	100 percent
Topography	terrace
Distance to Nearest Water	200 meters
Soil Association	WaA, Wahpeton silty clays
Cultural Affiliation	historic, Euro-American possible prehistoric
Approximate Site Measure	100 meters E-W, 50 meters N-S

Description

Site 32PB43, which was reported to the survey team by a local informant, is located on the edge of the T2 (third terrace) west (left bank) of the Red River. The site is located on the outside portion of a meander of the Red River (Figs. 19, 20 and 21a). The site consists of a very thin surface scatter of historic artifacts and bone fragments. Only one flake, attributed to a possible prehistoric occupation, was recovered. Because of the recovery of only one flake, the possible prehistoric component is considered only as a find spot. The faunal remains recovered may be attributed to either the prehistoric or historic use of the site. The local informant did not report ever finding prehistoric artifacts at this site. The artifact density is less than one item per 333 square meters. Examination of the T2 edge did not reveal evidence of more deeply buried cultural components. Shovel tests did not yield additional data. There is no evidence of a foundation. The landowner reported finding a late 19th century style bayonet on the site. Therefore, the historic component may have a military association. However, a literature and records search did not yield any information regarding a historic occupation at this locality.

PREHISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>
Flake	1	chert

HISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>	<u>Additional Information</u>
Teaspoon (Fig. 18d)	1	silver plate	unidentified maker's mark;

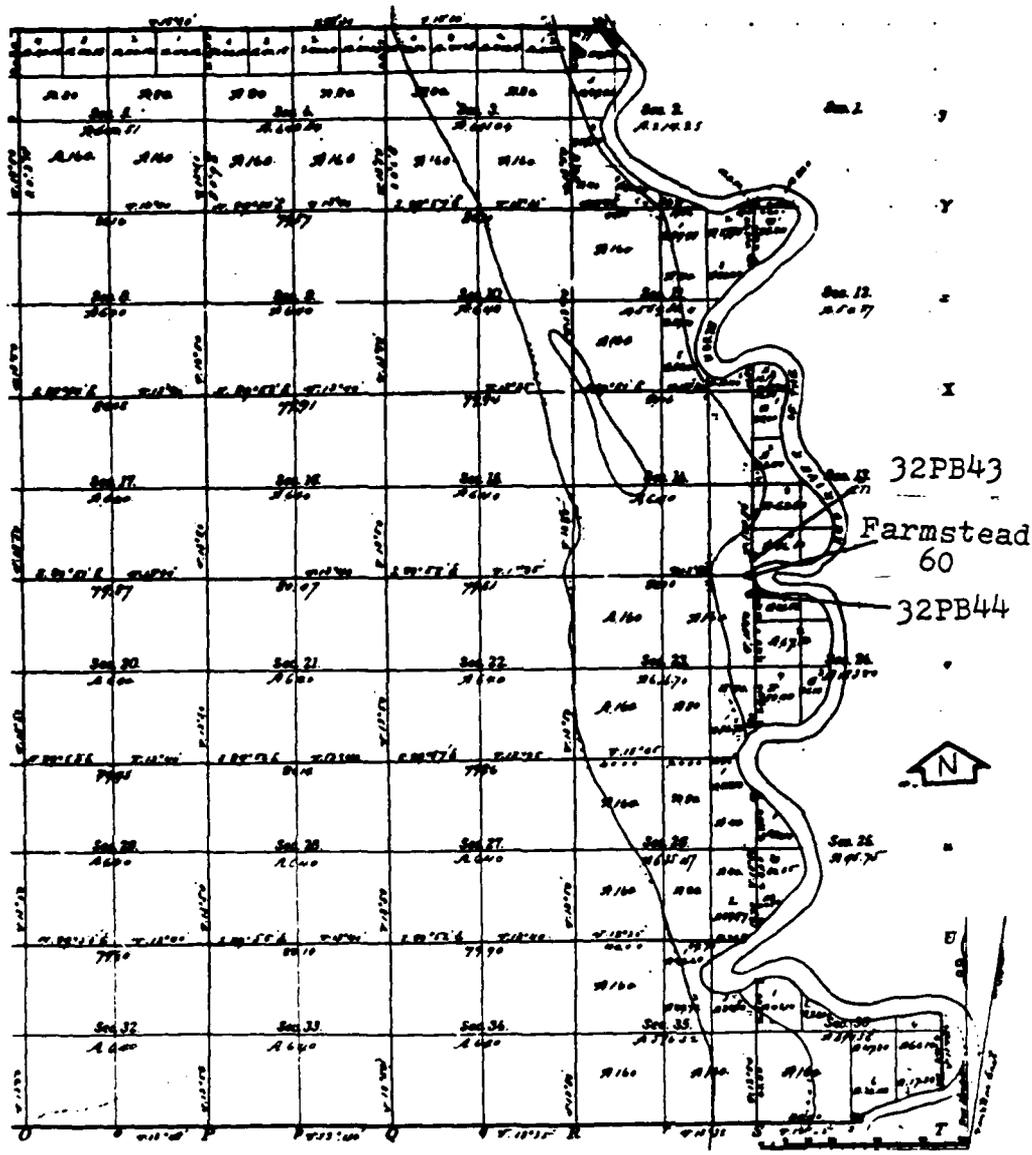


Figure 20. General Land Office Map, T162N, R51W, ca. 1868.



a



b

Figure 21. a. Photograph of sites 32PB43 and 32PB44, looking east.
b. Photograph of site 32PB45 looking east.

Tableware	1 base	whiteware	1840's design
Bottle glass	1 base	light blue	plain
	1 body	light blue	-
Window glass	2 frags.	light blue	-
Brick	5 frags.	clay	-

FAUNAL REMAINS

<u>Taxon</u>	<u>Element</u>	<u>Quantity</u>	<u>Side</u>	<u>Condition</u>	<u>Cut Marks</u>
Bison or Bos	maxillary molar	1	left	crown	-
	scapula	1	-	distal	-
	2nd phalanx	1	left	distal	-

Recommendations

Site 32PB43 has a historic component assigned to the mid and late 19th century. It may also have a prehistoric occupation based on the recovery of a single flake. However, the prehistoric component is considered a find spot since the single flake is an isolated find. Shovel tests did not yield additional data, but these negative results should not refute the possibility of the site having in situ deposits. Therefore, it is recommended that the site may be potentially significant until further investigations are conducted.

However, the site is located approximately 300 meters north of the present residence. Also, this farmstead, number 60, has a ring levee presently constructed around it. Site 32PB43 is north and outside of the ring levee. Because of the presence of an existing ring levee around the farmstead and the distance of the site from the residence, it should not be in danger of being adversely impacted by ring levee construction proposed by the Corps of Engineers.

32PB44

<u>Legal Location</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	23	162N	51W
Farmstead Number	60		
Map Quad	Joliette		
Type of Remains	lithic scatter		
Distance from Farmstead	250 meters south of house		
Elevation	241 meters		
Vegetation	none, plowed		
Estimated Size	5,000 square meters remaining		
Surface Visibility	100 percent		
Topography	terrace		
Distance to Nearest Water	450 meters		
Soil Association	WaA, Wahpeton silty clay		
Cultural Affiliation	prehistoric		
Approximate Site Measure	60 meters E-W, 80 meters N-S		

Description

Site 32PB44, which was located by the survey team, is located in a cultivated field on the edge of the T2 (third terrace) west (left bank) of the Red River. The site is situated on the outside of a meander of the Red River (Figs. 19, 20 and 21a). The site consists of a very thin scatter of lithics. The density of artifacts is less than one item per 500 square meters. The site contains a single prehistoric component. Examination of the edge of the T2 did not reveal evidence of buried cultural remains. Shovel tests did not yield any additional data. A portion of the site has been destroyed by construction of a house and ring levee. The landowner reported finding projectile points in the yard prior to the construction of the house. Based upon information provided by the landowners, the author's estimate one-half to three-fourths of the site has been destroyed. No culturally and/or temporally diagnostic artifacts were recovered.

PREHISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>
Retouched flake	1	Knife River Flint
Endscraper	1 frag.	quartzite
Biface/Knife	1 frag.	chert
Flake	7	3 chert, 3 Knife River Flint, 1 quartzite
Shatter	2	1 quartz, 1 chert

Recommendations

Site 32PB44 contains a single prehistoric component of undetermined cultural affiliation. Shovel tests did not yield additional data, but the negative results should not refute the possibility of in situ remains. Therefore, it is

recommended that the site be considered potentially significant until further investigations are conducted. However, because the farmstead, number 60, has a ring levee presently built around it, and the portion of the site located within the ring levee has been badly disturbed or destroyed by construction of a house and farm buildings, the remaining portion of site 32PB44 should not be in danger of being adversely impacted by proposed levee construction by the Corps of Engineers.

32PB45

New Fort Pembina

<u>Legal Location</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
NW¼ NE¼	16	163N	51W
N¼ SW¼ NE¼	16	163N	51W
Farmstead Number	35		
Map Quad	Pembina		
Type of Remains	bricks, metal		
Distance from Farmstead	surrounding farmstead		
Elevation	241 meters		
Vegetation	none (plowed), grass, trees		
Estimated Size	75,000 square meters		
Surface Visibility	0 to 100 percent		
Topography	terrace		
Distance to Nearest Water	100 meters		
Soil Association	HmA, Hegne-Fargo silty clay WaA, Wahpeton silty clay		
Cultural Affiliation	historic, 1870 to 1895 military post		
Approximate Site Measure	375 meters E-W, 200 meters N-S		

Description

Site 32PB45, which was found by conducting a literature search prior to conducting the field survey and by interviewing local informants, is the location of New Fort Pembina which was constructed in 1870 (Figs. 17, 21b and 22). The site contains two historic components, the earliest being New Fort Pembina and the more recent being a 20th century farmstead. The site is located on the T2 (third terrace) west (left bank) of the Red River. The site is situated on the outside perimeter of a meander of the Red River. The site consists of a surface scatter of brick fragments and metal. No shovel tests were dug. The present landowners, the Warners, were very helpful and informative concerning the recent history of the fort. The last standing structure, an officers' quarters, was destroyed in 1957.

History

On March 25, 1870, the Department of War directed the Department of Dakota to erect a military post in the vicinity of the Red River near the international boundary. Construction began in August, 1870. The fort encompassed all of sections 16, 17, and 18, in Township 163 North and Range 51 West of the 5th Principal Meridian. The actual military post was located in section 16 immediately on the west bank of the Red River of the North and one-fourth mile above (south) of the mouth of the Pembina River.

The location was chosen because it was the highest point near the Red River. Section 17 was chosen to provide hay and pasture and section 18 had the best stand of timber within eight kilometers (five miles) of the mouth of the Pembina

Pembina Quad
T163N, R51W

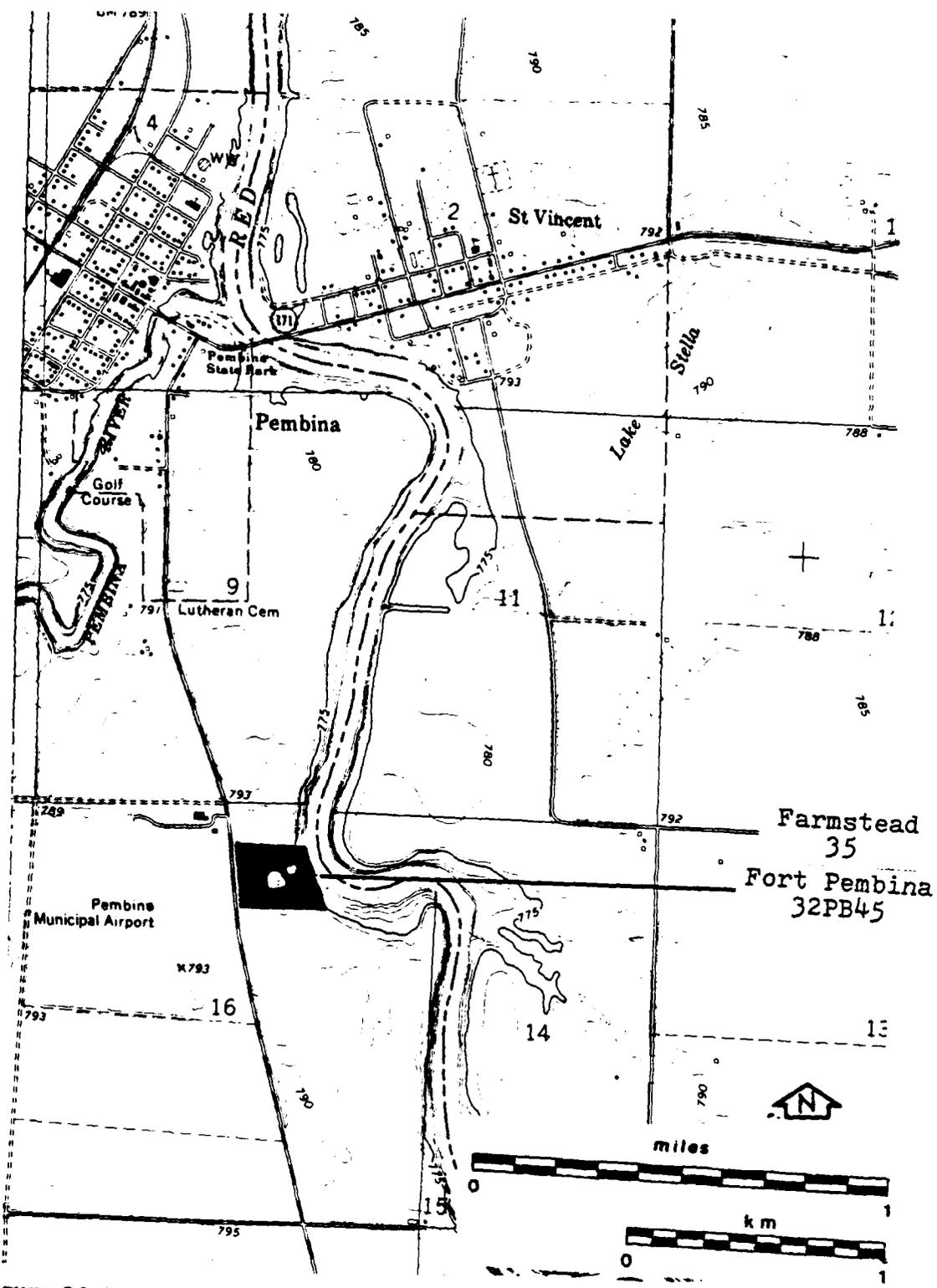


Figure 22. Map 4. Topographic map showing the location of site 32PB45.

River. The military reservation extended 4.8 kilometers (three miles) east and west and 1.6 kilometers (one mile) north and south. A part of section 15 was added later to provide a landing on the Red River. The post was arranged in the form of a rectangle lying east and west with all of the buildings facing a large parade area measuring 67 by 118 meters (220 by 386 feet). The buildings were to be surrounded by a log palisade. Buildings consisted of four double sets of officers' quarters, two company barracks, one guardhouse, one bakery, two company kitchens, one storehouse, a hospital, and a magazine which was the only building constructed of brick (Thomson 1969)(Fig. 9).

The post was occupied by approximately 125 recruits and eight officers during most of its years of operation. Most of the officers at the post were Civil War veterans with distinguished careers. The companies were composed of enlisted men, half of whom were of foreign birth. The majority of the foreign-born were from Ireland and Germany with a few from Russia, Denmark, Norway, Britain and Canada. The duties of the post consisted of investigating American Indian incidents, escorting boundary commissions, and doing routine post duties. Routine post duties consisted of reveille, a dress parade and the flag salute, fatigue duty, lunch, more fatigue duty and dinner followed by taps. Occasional maneuvers or patrols were conducted (Thomson 1969). A large portion of the fort was burned on May 25, 1895. On August 15, 1895, the fort was abandoned. The last building of Fort Pembina, an officers' quarters, was destroyed in 1957 to make room for the present residence (Warners, personal communication). The fort area was not intensively surveyed but cultural material, i.e. brick fragments, were observed in the fields and garden adjacent to the yard of the present residence. An interview with the landowners (the Warners) indicated that the site has never been investigated by professional archaeologists.

Recommendations

New Fort Pembina (32PB45) was an important military post which played an important role in the Euro-American settlement of the region. In 1870 only eight Euro-Americans lived in Pembina, six of whom were officials with the Bureau of Customs. By 1873 more than 500 Euro-Americans lived in Pembina. In 1870 the town had three frame houses but three years later it had 40 houses, eight saloons and several stores. The United States Court held sessions there twice a year. Settlement of the Red River Valley between Pembina and Grand Forks began shortly after 1870. For example, Grand Forks had a single cabin in 1870 and by 1873 there was a village of 400 to 500 people. With the policing of the countryside by a United States Deputy Marshall and more civilian control of law-and-order, the need of the military post diminished by 1891. Abandonment of the post began and was completed in 1895 (Thompson 1969:30).

Unfortunately, no standing structures remain of the fort. Although no shovel tests were dug by the survey team, information provided by the landowners (the Warners) indicate subsurface remains (cellars) are present. Therefore, the site may potentially have in situ buried cultural remains which may help elucidate the early Euro-American military presence in the region. Because of the significant part the fort played in the early 1870's Euro-American settlement of the middle Red River Valley in the United States, it is recommended that New Fort Pembina be considered potentially eligible for nomination to the National Register. Because the present residence is located in the midst of the military post, any soil disturbance in the vicinity of the farmstead will likely have adverse impacts upon the cultural remains. Unless avoidance is implemented, the military component warrants further investigations. The present residents (the Warners) tended not to favor construction of a ring levee around their house. Therefore, avoidance may be an alternative. If avoidance is not an alternative, irreputable destruction may be inflicted upon the subsurface remains of New Fort Pembina.

32PB46

<u>Legal Location</u> NW¼ SW¼ SW¼	<u>Section</u> 35	<u>Township</u> 163N	<u>Range</u> 51W
Farmstead Number	48		
Map Quad	Pembina		
Type of Remains	log house		
Distance from Farmstead	none		
Elevation	241 meters		
Vegetation	grass, trees		
Estimated Size	10,000 square meters (yard)		
Surface Visibility	0 percent		
Topography	terrace		
Distance to Nearest Water	150 meters		
Soil Association	WaA, Wahpeton silty clays		
Cultural Affiliation	historic, ca. 1880's		
Approximate Site Measure	10 meters E-W, 10 meters N-S		

Description

Site 32PB46, which was reported to the survey team by a local informant, is located on the T2 (third terrace) west (left bank) of the Red River. The site is located on the outside of a meander of the Red River. The site has a single historic component which consists of a two-story, oak log house with squared-logs which are dove-tailed at the corners (Figs. 16, 17 and 23a). The house has a gable roof. A small room and porch have been added to the east and south sides, respectively. The log house was used until the 1930's or early 1940's before it was abandoned (Richard Oakes, personal communication). The structure does not have a foundation. The first floor is a single large room and the second floor has two bedrooms. This is one of the few originally constructed log houses remaining in the region. The structure measures approximately seven meters long and five meters wide.

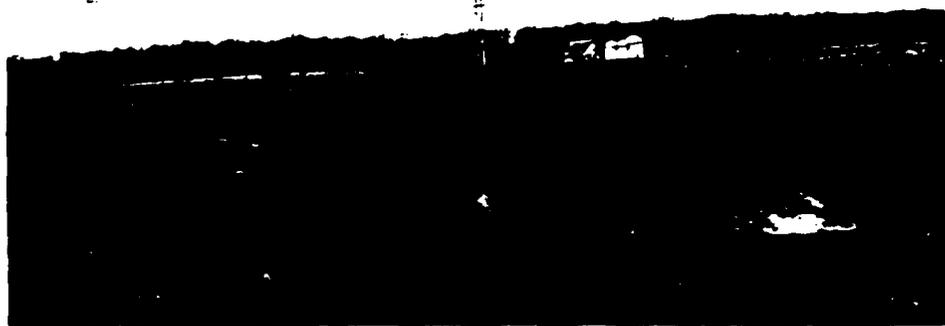
The house is periodically flooded by waters of the Red River (U.S. Army Corps of Engineers plaque inside house). A search of the deed records in the Pembina County Courthouse in Cavalier did not yield specific information on the log house, but did yield information regarding early property owners of the lands in the vicinity of the log structure. No specific information is available regarding the builders or date of construction. The dove-tailed, squared-log construction was an architectural form used in the region in the last half of the 19th century.

Recommendations

Site 32PB46 is one of the few remaining dove-tailed, squared-log constructed houses in the region. The structure is in relatively good condition. A records search at the Pembina County Courthouse in Cavalier did not yield any specific information about when or by whom the structure was built. The site does not have any important historical persons associated with it. However, the authors believe the



a



b

Figure 23. a. Photograph of site 32PB46 looking northeast.
b. Photograph of site 32PB47 looking west.

site warrants attention and should be considered potentially significant because of its construction techniques, its good condition, and because very few structures of this type remain in the region.

However, since site 32PB46 is a standing, abandoned structure, ring levee construction may enhance its preservation since the house is periodically flooded. Avoidance will leave the structure in its present condition, leaving it susceptible to periodic flooding which enhances its ultimate deterioration. It is recommended that a ring levee be built around this farmstead to help protect it from deterioration by periodic flooding.

32PB47

<u>Legal Location</u> SW $\frac{1}{4}$ NE $\frac{1}{4}$	<u>Section</u> 18	<u>Township</u> 163N	<u>Range</u> 51W
Farmstead Number		33	
Map Quad		Bathgate NE	
Type of Remains		lithics, pottery, glass, metal	
Distance from Farmstead		none (house destroyed)	
Elevation		241 meters	
Vegetation		none, plowed	
Estimated Size		25,000 square meters	
Surface Visibility		100 percent	
Topography		terrace	
Distance to Nearest Water		300 meters	
Soil Association		WaA, Wahpeton silty clay	
Cultural Affiliation		prehistoric, Late Woodland, historic, 1880 to present	
Approximate Site Measure		100 meters E-W, 250 meters N-S	

Description

Site 32PB47, which was found by the survey team, is located in a cultivated field on the T1 (second terrace) east (right bank) of the Pembina River. The site is situated on the outside of an abandoned meander of the Pembina River. The abandoned meander is presently a marshland and is being filled by alluviation (Figs. 23b, 24 and 25). The site consists of a surface scatter of prehistoric lithics, ceramics and faunal remains and historic ceramics, glass and metal with a density of greater than one item per 500 square meters. The prehistoric component was probably occupied prior to the abandonment of the meander by the river.

The prehistoric component has been assigned to a Late Woodland occupation on the basis of the recovery of Blackduck ceramic ware. The site was probably used as a general maintenance camp, where generalized hunting, butchering and gathering activities were performed. This inference is based upon the recovery of a variety of chipped stone tools, ceramics and faunal remains, particularly bison.

The historic component is attributed to a late 19th and early 20th century Euro-American occupation based upon relative dates obtained by examination of mold seams on bottle necks. A deeds search at the Pembina County Courthouse in Cavalier did not yield information about the time of construction or demolition of the house. The house has been destroyed and the structural remains are metal and wooden graineries. No house foundation is present. Shovel tests did not recover any historic or prehistoric artifacts. The recovery of a rosary fragment from the historic component suggests the historic inhabitants were of the Catholic faith. The negative results of the shovel tests does not refute the possibility of in situ cultural remains being present.

Bathgate NE Quad
T163N, R52W, R53W

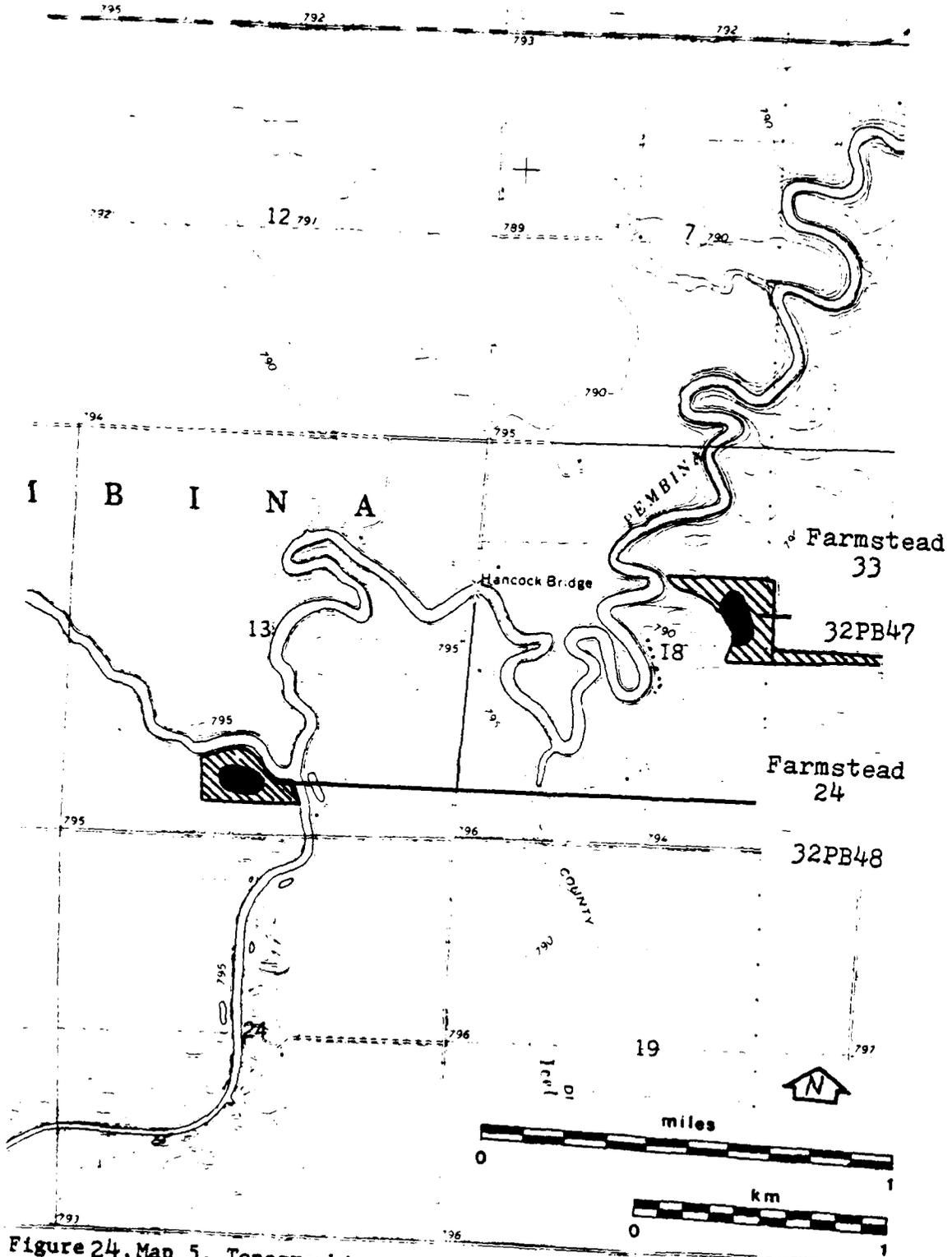


Figure 24. Map 5. Topographic map showing the locations of sites 32PB47 and 32PB48.

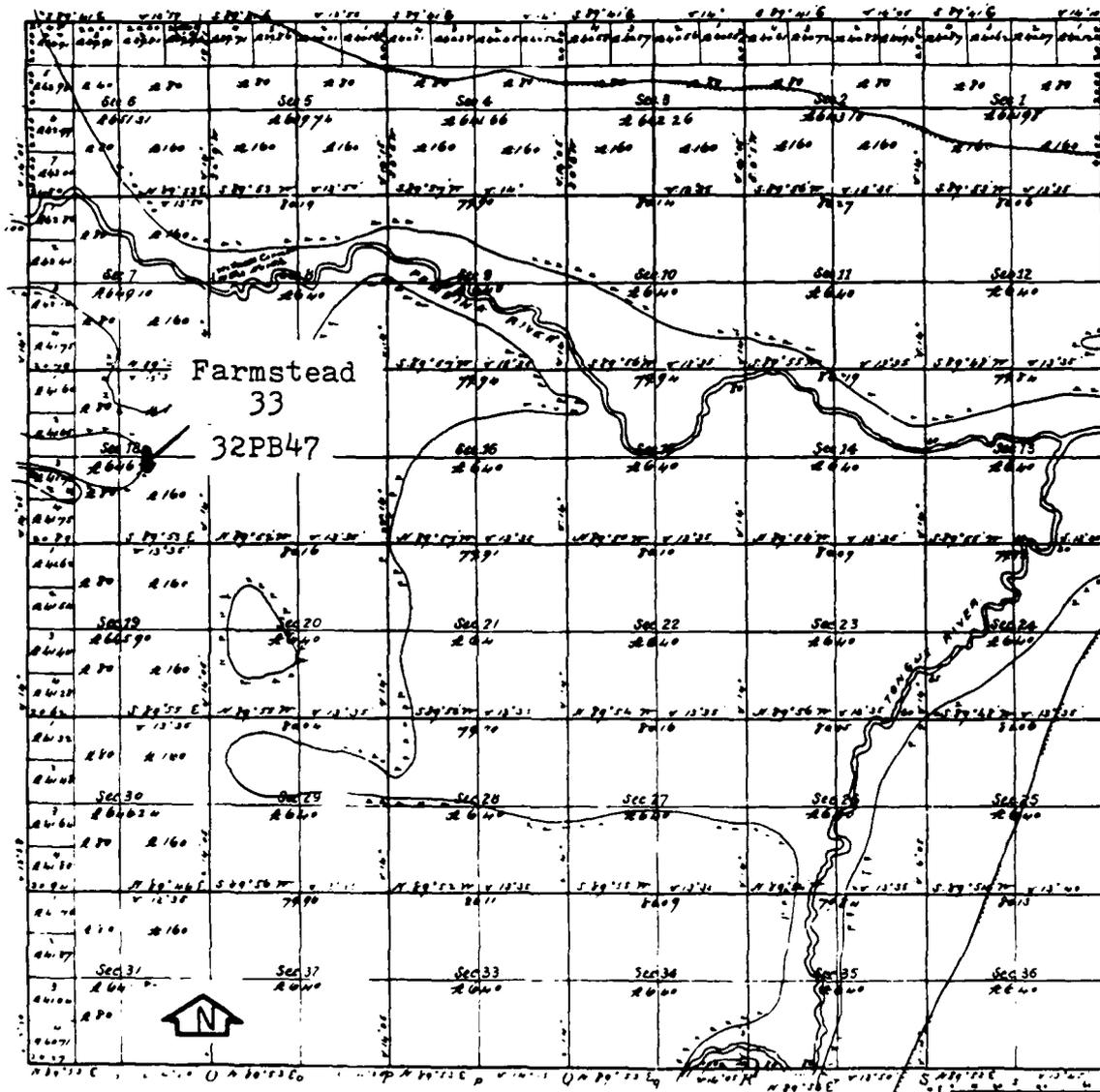


Figure 25. General Land Office Map, T163N, R52W, ca. 1868.

PREHISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>
Knife/Biface*	1	chert
Flakes	4	2 Knife River Flint, 2 chert
Shatter	2	1 Tongue River silicified sediment, 1 quartzite
Pottery	2 rims* 19 body sherds	crushed granite temper; 4 cord- marked; 15 smooth (plain) exterior

Artifact Descriptions

Knife/Biface

Specimen S-1 (Fig. 18e) is a complete, chert knife/biface with a hafting element along one lateral edge. The tool is ovate in outline and lenticular in cross-section. Large, invasive flake scars are present on both surfaces. The working edge exhibits secondary retouch and use-wear. The specimen measures 84.0 mm long, 50.4 mm wide, and 11.9 mm thick.

Pottery

Specimen S-8 (Figs. 15c and 18f) is a rim sherd with a rounded lip. The exterior surface is smooth and exhibits a single stick impression. It is tempered with crushed granite.

Specimen S-9 (Figs. 15c and 18g) is a rim sherd with a flat lip which exhibits a single stick impression. Diagonal cordmarks are present on the exterior surface. It is tempered with crushed granite.

HISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>	<u>Additional Information</u>
Tableware	1 base	whiteware	plain; maker's mark: 1905-1929
	1 rim	whiteware	molded, scal- loped and transfer- printed
Bottle stopper	1	porcelain	-
Bottle glass	2 complete	clear	post-1903, 1 screw top and embossed: "Hinds/Honey/ and/Almond/ Cream/A.S. Hinds Co./ Bloomfield/ N.J. U.S.A."
	4 necks	amethyst	2 brandy tops:

			one 1860-1900,
			one 1880-1900,
			1 oil top:
			1860-1880
Bead	1	blue glass	modern
Rosary	1 frag.	blue faceted	section of 5
		glass	beads
Metal	1	lead	molten

FAUNAL REMAINS

<u>Taxon</u>	<u>Element</u>	<u>Quantity</u>	<u>Side</u>	<u>Condition</u>	<u>Cut Marks</u>
<i>Bison</i> or <i>Bos</i>	3rd maxillary molar	1	left	complete	-
	1st and 2nd mandibular molar	2	left	crown	-
	3rd mandibular molar	1	rt.	complete	-
<i>Bison bison</i>	scapula	1	left	distal	-
	astragalus	1	left	complete	-
	1st phalanx	2	1 rt.	nearly complete	-
			1 l.	nearly complete	-
<i>Vulpes vulpes</i> (red fox)	mandible	1	rt.	nearly complete	-
unidentified large mammal	carpal	1	-	complete	-

Recommendations

Site 32PB47 contains two components, a prehistoric Late Woodland occupation and a late 19th century and early 20th century historic occupation. The prehistoric occupation was probably a generalized maintenance camp where hunting, butchering and gathering activities were performed. The occurrence of bison as the predominant faunal assemblage suggests it was the primary source of large mammal meat procured by the site's prehistoric occupants. A literature and records search did not yield any information regarding the historic component. Because the residence has been destroyed, the construction of a ring levee may be doubtful. Therefore, site 32PB47 may not be adversely impacted by ring levee construction proposed by the Corps of Engineers. Avoidance will maintain the site's present integrity.

32PB48

<u>Legal Location</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
E½ SE¼ SW¼	13	163N	52W
Farmstead Number	24		
Map Quad	Bathgate NE		
Type of Remains	glass, pottery (historic), flake		
Distance from Farmstead	none		
Elevation	244 meters		
Vegetation	none, plowed		
Estimated Size	11,250 square meters		
Surface Visibility	100 percent		
Topography	terrace		
Distance to Nearest Water	150 meters		
Soil Association	CaA, Cashel silty clay		
Cultural Affiliation	historic, ca. 1880 to present		
Approximate Site Measure	150 meters E-W, 75 meters N-S		

Description

Site 32PB48 (Figs. 24 and 26a), which was found by the survey team, is located in a cultivated field on the T1 (second terrace) south (right bank) of the Tongue River. The site consists of a scatter of historic glass, pottery and faunal remains. A single isolated prehistoric flake was recovered. Because the possible prehistoric component is represented by a single isolated flake, it is considered a find spot. Shovel tests did not recover additional prehistoric remains. Faunal remains can be attributed to the historic occupation of the site.

In addition to a surface scatter of historic debris, the historic component consists of a standing, abandoned farm house and outbuildings. A literature and records search at the Pembina County Courthouse in Cavalier did not yield any information about the time of house construction and occupation. The recovery of glass bottle necks and examination of their mold seams suggests a site occupation of 1880 to the present. The standing house is a two-story, clapboard frame, structure with a gable roof. A small porch is attached to the south-facing front. The house is not architecturally unique. Shovel tests did not recover any additional historic artifacts. The historic artifact density is approximately one item per 450 square meters.

PREHISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>
Flake	1	Tongue River silicified sediment



a



b

Figure 26. a. Photograph of site 32PB48 looking north.
b. Photograph of site 32WA7, Acton, looking northeast.

HISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>	<u>Additional Information</u>
Crock	1 rim	stoneware	salt-glazed exterior
	2 bases	stoneware	1 salt-glazed exterior
	1 body	stoneware	salt-glazed exterior
Kitchenware Tableware	2 bases	stoneware	-
	3 bases	whiteware	plain, 1 maker's mark: 1883-1913
Decorative ware	1 lid	whiteware	plain
	1 frag.	porcelain	female figure in alto rilievo (high relief)
Door knob	1 frag.	whiteware	porcelain finish
Bottle glass	8 necks	amethyst	brandy tops; 1: 1860-1880, 5: 1880-1900
	2 bases	1 light blue, 1 amethyst	-
	1 stopper	light blue	-
Button	1	metal	4 center holes, plain

FAUNAL REMAINS

<u>Taxon</u>	<u>Element</u>	<u>Quantity</u>	<u>Side</u>	<u>Condition</u>	<u>Cut Marks</u>
<i>Canis</i> sp.	lower canine	1	left	complete	-

Recommendations

Site 32PB48 contains a late 19th and 20th century Euro-American occupation. The standing structures include a non-unique clapboard house and outbuildings. A literature and records search did not recovery any specific information regarding the historic occupation. Shovel tests did not recover any cultural remains. The prehistoric component is represented by a single isolated flake and is considered a find spot. Because the house is abandoned, proposed ring levee construction may be easily avoided. If avoidance is followed, there will be no danger to the components at site 32PB48.

32WA6

<u>Legal Location</u> SW% NE% SW%	<u>Section</u> 21	<u>Township</u> 156N	<u>Range</u> 51W
Farmstead Number	224		
Map Quad	Big Woods SW		
Type of Remains	log house		
Distance from Farmstead	none		
Elevation	244 meters		
Vegetation	grass, trees		
Estimated Size	4,000 square meters (yard)		
Surface Visibility	0 percent		
Topography	uplands		
Distance to Nearest Water	1050 meters		
Soil Association	HmA, Hegne-Fargo silty clays		
Cultural Affiliation	historic, ca. 1880's		
Approximate Site Measure	60 meters E-W, 60 meters N-S		

Description

Site 32WA6 (Figs. 27 and 28), which was reported to the survey team by a local informant, is located on the flat lands 1.2 kilometers (three fourths mile) from the nearest water source. The site consists of a T-shaped, one story, log house. The logs are squared-off and are dove-tailed at the corners. No foundation is present. Clapboard siding has been added over the logs, protecting them from further deterioration. A small room has been added to the north part of the log house. This is one of the few remaining, originally constructed, log houses in the region. However, the house has been abandoned for several years. There was an accompanying log grainery but it was dismantled in 1982. The owner numbered the logs before he dismantled it. A literature and records search at the Walsh County Courthouse did not obtain any specific information regarding the time of house construction. An interview with the tenent did not yield any additional information.

Recommendations

Site 32WA6 is one of the few remaining log houses in the region. Its T-shaped design and dove-tailed construction are excellent examples of the homestead architecture used at the time of original Euro-American settlement. The log house is in very good condition, having been protected on the exterior by clapboard siding. Because very few dove-tailed, squared-log houses remain in the region, it is recommended that the site be considered potentially significant. However, because the house is abandoned and is in need of repair, the Corps of Engineers may decide not to construct a ring levee around this farmstead. On the other hand, due to periodic flooding, the log house may be better preserved if a ring levee is constructed around it in order to keep out floodwaters which hasten its deterioration.

Big Woods SW Quad
T156N, R51W

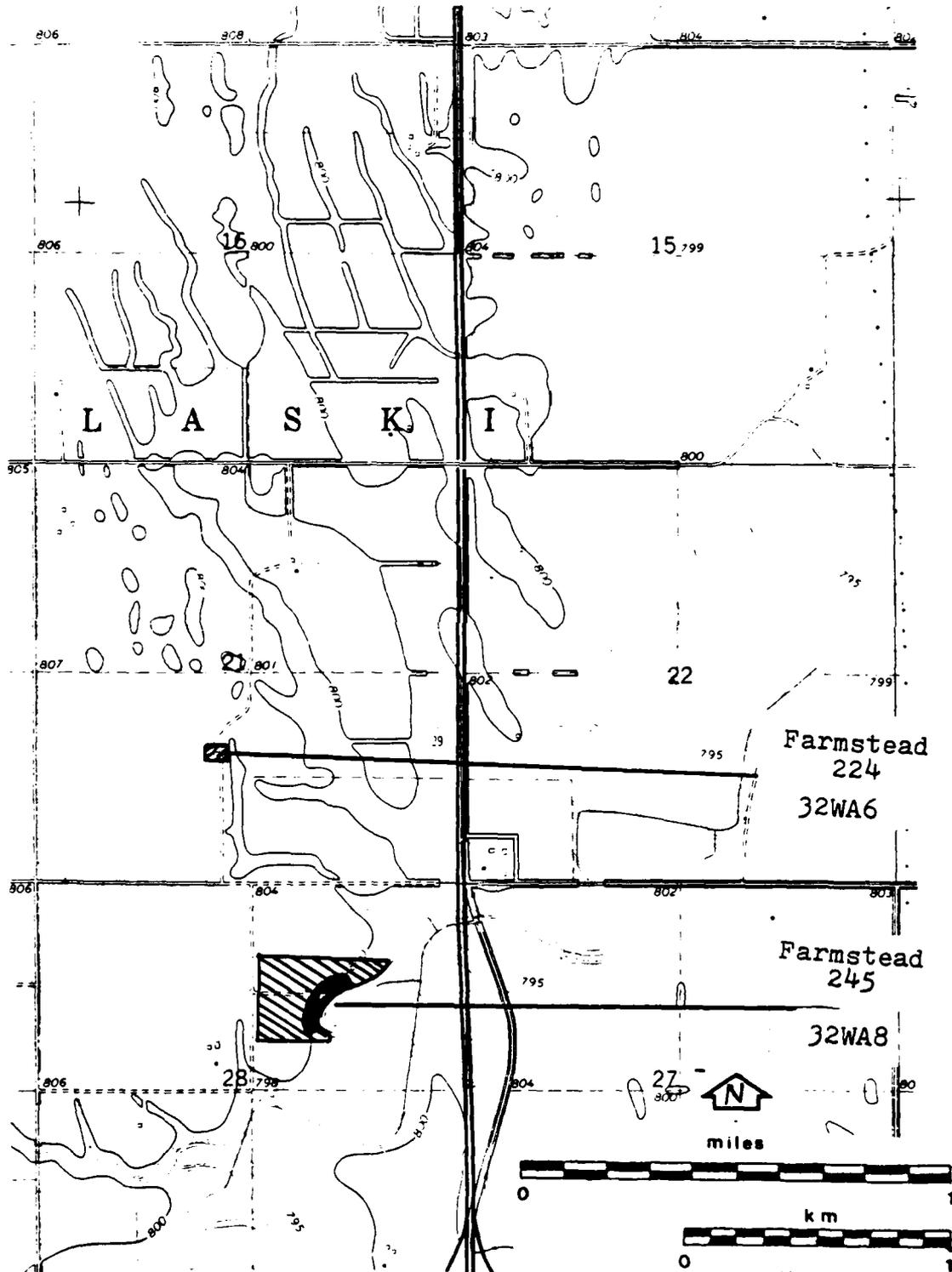


Figure 27. Map 6. Topographic map showing the locations of sites 32WA6 and 32WA8.

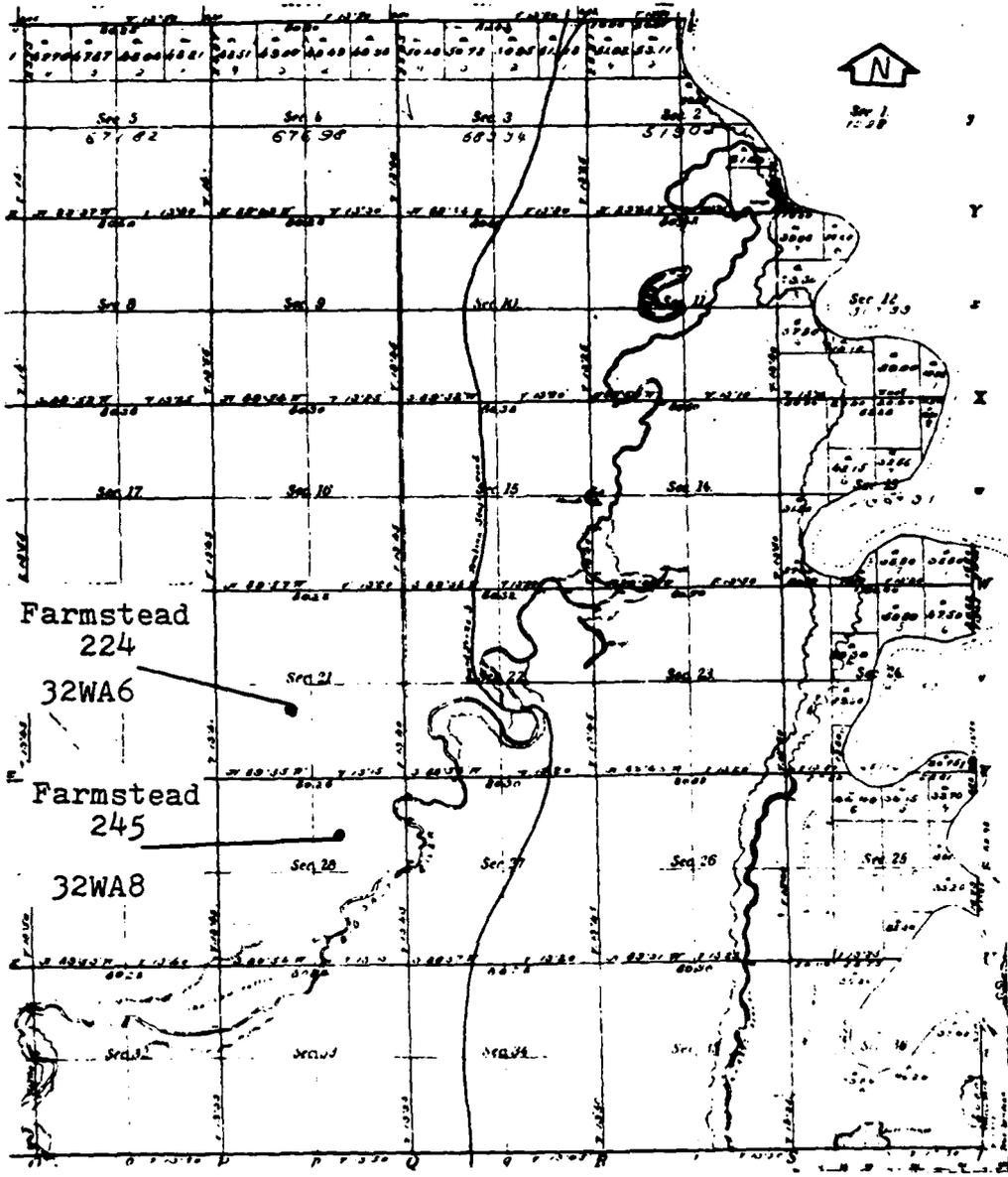


Figure 28. General Land Office Map, T156N, R51W, ca. 1878.

32WA7

Acton Townsite

<u>Legal Location</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
SW¼ NW¼	25	157N	51W
Farmstead Number		177	
Map Quad		Big Woods NW	
Type of Remains		school, house, stores	
Distance from Farmstead		none	
Elevation		242 meters	
Vegetation		grass, trees	
Estimated Size		240,000 square meters	
Surface Visibility		0 percent	
Topography		terrace	
Distance to Nearest Water		10 meters	
Soil Association		FhA, Fargo-Hegne silty clays, HmA, Hegne-Fargo silty clays	
Cultural Affiliation		historic, ca. 1879-1900	
Approximate Site Measure		400 meters E-W, 600 meters N-S	

Description

Site 32WA7 (Figs. 26b, 29 and 30), which was reported to the survey team by local informants, is located on the T1 (second terrace) west (left bank) of the Red River. Its location is on the outside of a meander of the Red River. The site consists of several standing structures including a school, a house, and several stores. They are all abandoned. The site is the location of the early townsite of Acton. Acton was once the largest city in Walsh County, Dakota Territory. It was a strong candidate for the county seat. Acton peaked in the summer of 1881 with a population of over 400, but when the railroad, pushing northward, was surveyed 11 kilometers (seven miles) west, bound for Grafton, Acton's fortune was doomed. By the time of the 1920 census the population was only 28 (L.L. Poates and Co. 1921:299).

History

The original resident of Acton was a Norwegian wood chopper, named Larson, who supplied steamboats on the Red River with fuel. In June, 1871, Antoine Girard (or Gerrard), a Canadian from Acton, Ontario, pitched his tent and named his new home Rose Point. In 1872, a Mr. B.S. Kelley and his family arrived, followed by Jacob Reinhardt. These were Acton's first businessmen and, between them, they operated a tavern, a stage station and a general store.

Rose Point was granted a Post Office in 1871, but it was never brought into operation. In 1878, a Post Office was established under the name of Kelley's Point, but when the townsite was platted in 1879 it was named Acton. Acton received its start as a midway station between Grand Forks and Pembina on a stage line that ran between Fort Abercrombie and Pembina, but it was river navigation that built Acton.

Big Woods NW Quad
T157N, R51W

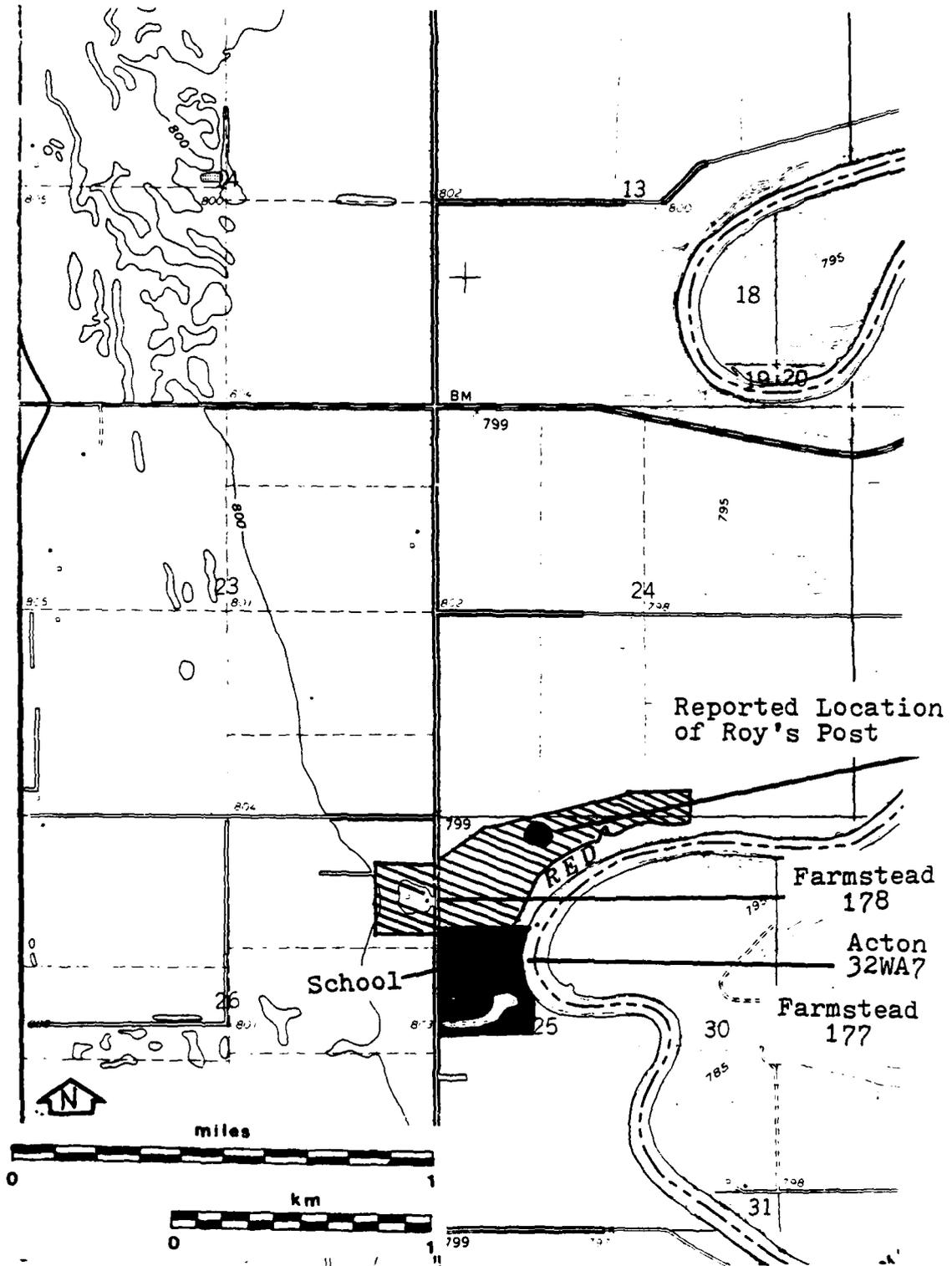


Figure 29. Map 7. Topographic map showing the locations of sites 32WA7, Roy's Post, and Farmstead number 178.

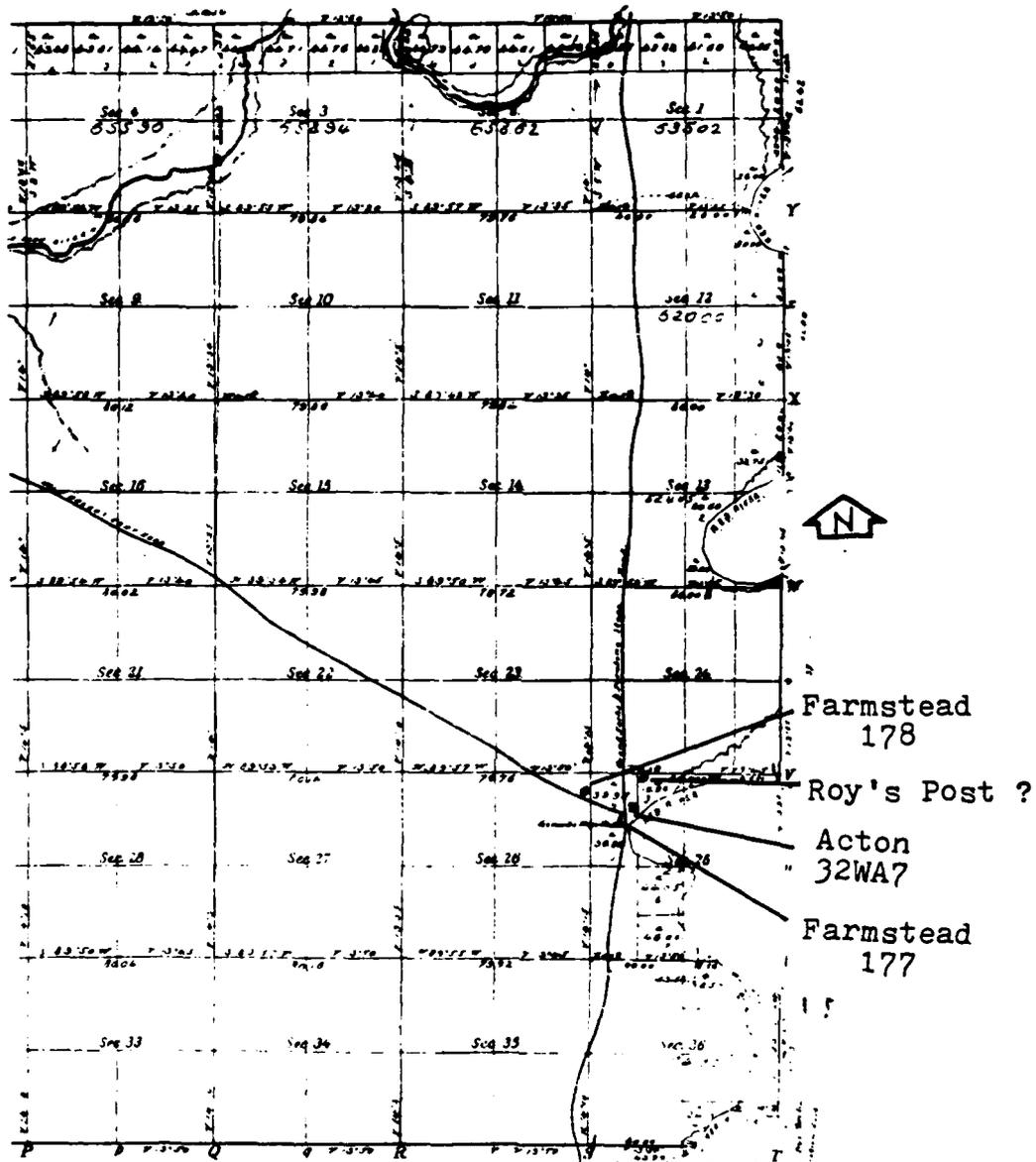


Figure 30. General Land Office Map, T157N, R51W, ca. 1877.

Thousands of immigrants came to Acton on the steamboats. Settlers bought goods in Acton that the boats brought and farmers shipped their produce from Acton.

In 1879, Girard, owner of the townsite, hired a surveyor and had Acton platted. The original plat of Acton included ten and one-half blocks. A year later an addition was made and Acton consisted of 14 and one-half blocks with three streets running north and south, six streets running east and west, 155 lots measuring 15 by 43 meters (50 by 140 feet), and 23 lots of varying sizes (Figs. 31 and 32).

Acton had many buildings and businesses: two hotels, a schoolhouse, a newspaper, a saloon, a liquor store, a grocery, a general store, a hardware store, two elevators, two farm machinery dealers, a shoe store, a blacksmith, a drug store and two law, loan and land offices. The railroad reached Grafton, 19 kilometers (12 miles) west of Acton, in December 1881 and many businessmen moved their buildings on oxen drawn sleighs into Minto or Grafton after the first snowfall that winter. Other buildings were moved to new locations near Acton.

Acton remained active for about 20 years. The steamboats and elevators operated until 1910 and the Post Office until 1913. The school was used until May, 1956 (Fig. 33a). In 1934, Louise and Alfred Hoenke purchased the townsite. The information contained herein was given by Louise Hoenke. The Hoenkes and their family were the sole residents of Acton until 1981 when they moved to Grafton where Louise still resides. Their residence, located across the road from the town site, is now no longer occupied (Fig. 33b). This house was formerly a part of a combination post office and general store in Acton and was moved to its present location in 1909.

Artifacts such as gun shells and projectile points are still found on the townsite. The Acton town hall is located near Interstate 29, 1.6 kilometers (one mile) south of the Grafton exit, having been moved there in 1934 (Fig. 34a). Most of the townsite is virgin prairie. The Hoenke's refrained from plowing it as there are known to be about 25 unmarked graves of early settlers somewhere within the townsite. Their exact location in the townsite is not known. The schoolhouse still occupies its original location (Fig. 33a), but the buildings which were moved to Grafton and Minto are believed to have been destroyed.

Recommendations

Acton was one of the more important towns in the Euro-American settlement of northeastern North Dakota. The town had a population of over 400 people in 1881. It was an important commerce center for the shipping of grain on the Red River. Founded in 1879, it was the gateway to northern North Dakota for many homesteaders in the early 1880's, which was the time of the first big agricultural boom in North

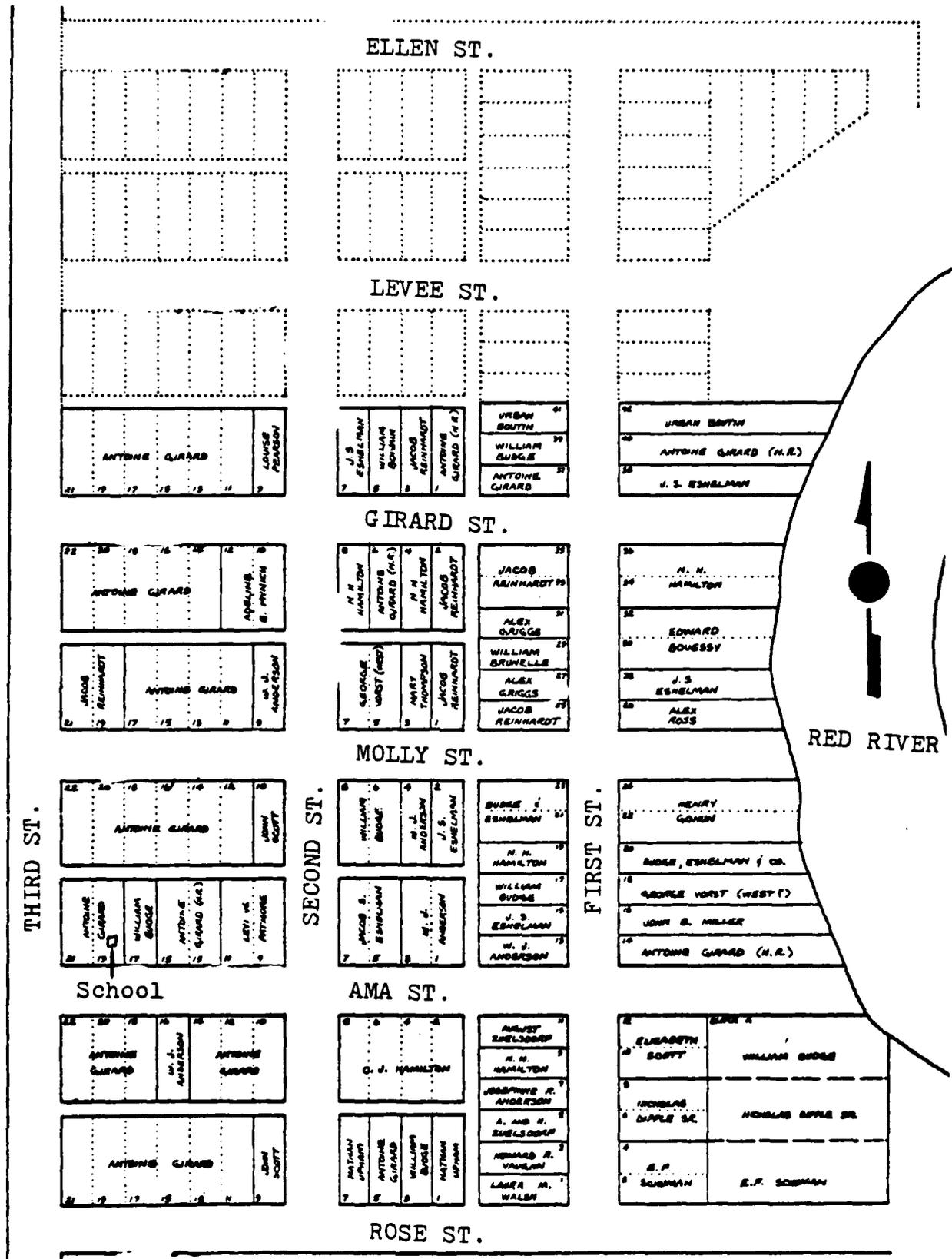


Figure 31. Landowners in Acton Village, June, 1880.

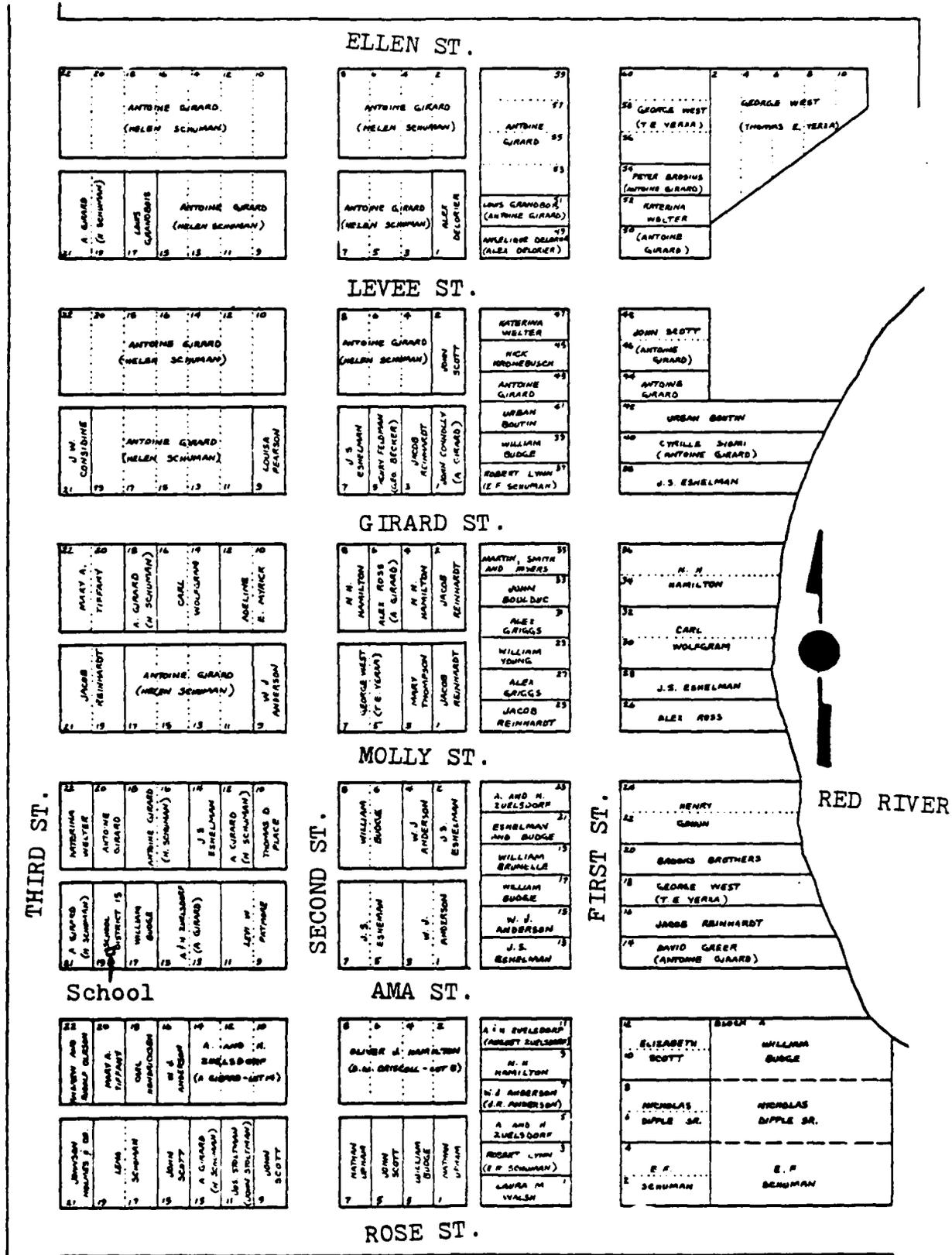


Figure 32. Landowners in Acton Village in 1884 - 1887.



a



b

- Figure 33. a. Photograph of schoolhouse, Acton, site 32WA7, looking north.
b. Photograph of farmstead 178, looking east. The farmhouse was originally part of Acton Post Office and a general store.



a



b

Figure 34. a. Photograph of Acton Town Hall, looking northeast.
b. Photograph of site 32WA8, looking east.

Dakota. Although most of the buildings have been removed, the abandoned school, a house and several stores remain standing. Also, informants report the presence of an unmarked cemetery, exact location unknown, somewhere within the town boundaries. It is recommended that the Acton townsite be considered potentially significant. However, because the standing, but abandoned house, school and stores may not warrant proposed levee construction by the Corps of Engineers, the townsite may not be adversely impacted if avoidance is chosen. Since the exact location of the proposed levee for the farmstead is not known at this time (Scope of Work 1982:2, Section 3.03), any major land alteration may expose and destroy the unmarked cemetery.

32WAB

<u>Legal Location</u> SW¼ NW¼ NE¼	<u>Section</u> 28	<u>Township</u> 156N	<u>Range</u> 51W
Farmstead Number		245	
Map Quad		Big Woods SW	
Type of Remains		lithic scatter	
Distance from Farmstead		100 meters east of house	
Elevation		244 meters	
Vegetation		none (plowed), grass	
Estimated Size		15,000 square meters	
Surface Visibility		0 to 100 percent	
Topography		terrace	
Distance to Nearest Water		10 meters	
Soil Association		FhA, Fargo-Hegne silty clay	
Cultural Affiliation		Woodland	
Approximate Site Measure		100 meters E-W, 150 meters N-S	

Description

Site 32WAB (27, 28 and 34b), which was found by the survey team, is located on the T1 (second terrace) on the west (left) bank of the Forest River. The site is situated on the outside of a meander of the Forest River. The site consists of a thin surface scatter of lithic debris and tools having a density of one item per 1875 square meters. The recovery of a medium-size, side-notched projectile point suggests a Woodland occupation. The landowner reported finding stone tools in the area when he used horses and small tractors for farming many years ago. The absence of pottery suggests either the site may be earlier than Woodland (i.e. aceramic) or, more likely, it represents a small camp of nomadic hunters and gatherers performing specialized activities which did not require the use of pottery vessels. Shovel tests did not recover any additional data. However, the negative results of the shovel tests do not refute the possibility of in situ cultural remains. The standing historical structures are an abandoned house and several outbuildings.

PREHISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>
Projectile point*	1	chert
Side scraper*	1	chert
Flake	4	chert
Shatter	2	quartzite

Artifact Descriptions

Projectile Point

Specimen S-1 (Fig. 18h) is a complete, chert projectile point. It is triangular in outline and lenticular in cross-section. Both surfaces have been invasively modified. The lateral edges are slightly convex. The base is straight and

it has been ground. Side-notches are present. The specimen measures 33.2 mm long, 14.3 mm wide, and 7.2 mm thick. It is similar to Avonlea points which are dated between about A.D. 220 and A.D. 660 (Perino 1968:6).

Side Scraper

Specimen S-2 (Fig. 18i) is a chert side scraper. The right lateral edge of the dorsal surface exhibits marginal retouch. This working edge is steep (80 degrees). The ventral surface is unmodified. The specimen measures 28.6 mm long, 22.6 mm wide, and 4.9 mm thick.

Recommendations

Site 32WAB has a single prehistoric component. A projectile point recovered from the surface is similar to styles associated with Woodland cultures elsewhere in the Plains. Shovel tests did not yield additional cultural remains. Construction of a ring levee will destroy much of the site since the site is situated between the abandoned residence and the Forest River, where a portion of a ring levee would be required. However, because the house is abandoned, the Corps of Engineers may decide not to build a ring levee around this farmstead. Avoidance, will not adversely impact site 32WAB.

32WA9

<u>Legal Location</u> E½ SE¼ SW¼	<u>Section</u> 10	<u>Township</u> 155N	<u>Range</u> 51W
Farmstead Number		278	
Map Quad		Big Woods SW	
Type of Remains		lithic scatter	
Distance from Farmstead		none, surrounds house	
Elevation		244 meters	
Vegetation		none, plowed	
Estimated Size		50,000 square meters	
Surface Visibility		100 percent	
Topography		terrace	
Distance to Nearest Water		50 meters	
Soil Association		WaA, Wahpeton silty clay	
Cultural Affiliation		prehistoric	
Approximate Site Measure		170 meters E-W, 300 meters N-S	

Description

Site 32WA9 (Figs. 35, 36 and 37a), which was found by the survey team, is located on the T1 (second terrace) east (right bank) of the North Marais River. Surface soils are primarily Wahpeton silty clays which have formed in recent alluvium. Since only two flakes were recovered from the surface of the site during the survey, the site density averages only approximately one item per 25,000 square meters. The estimated site area is based upon the dispersal of the two flakes recovered and information provided by the landowner. A portion of the site has been destroyed by construction of a house and farm buildings. The landowner reported finding stone tools in the area around his house prior to the 1979 flood, which apparently resulted in alluviation and scouring. Shovel tests did not yield additional cultural remains. However, the negative results of the shovel tests do not refute the possibility of in situ cultural remains.

PREHISTORIC ARTIFACTS

<u>Artifact Type</u>	<u>Quantity</u>	<u>Material Type</u>
Flake	2	1 Knife River Flint, 1 chert

Recommendations

Site 32WA9 may contain in situ cultural remains. Shovel tests did not yield additional data. The site has a single prehistoric component with an undefined cultural affiliation. It is recommended that the site be considered potentially significant until further investigations are conducted. Because the farmstead is occupied, and the landowner reports finding lithic artifacts in the area prior to the 1979 flood, it is also recommended that site 32WA9 be further investigated. The proposed ring levee will probably destroy

Big Woods SW Quad
T155N, R51W

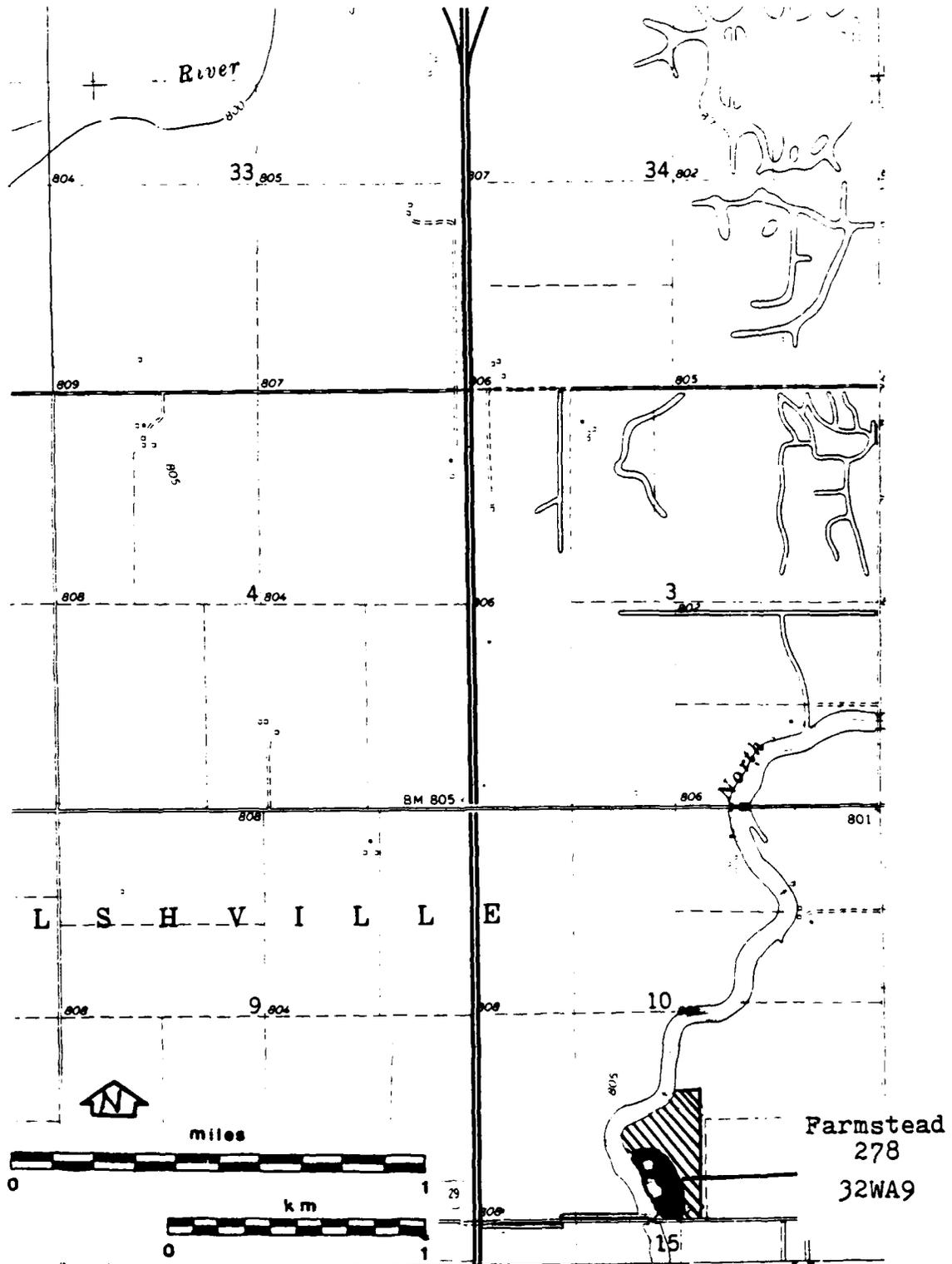


Figure 35. Map 8. Topographic map showing the location of site 32WA9.

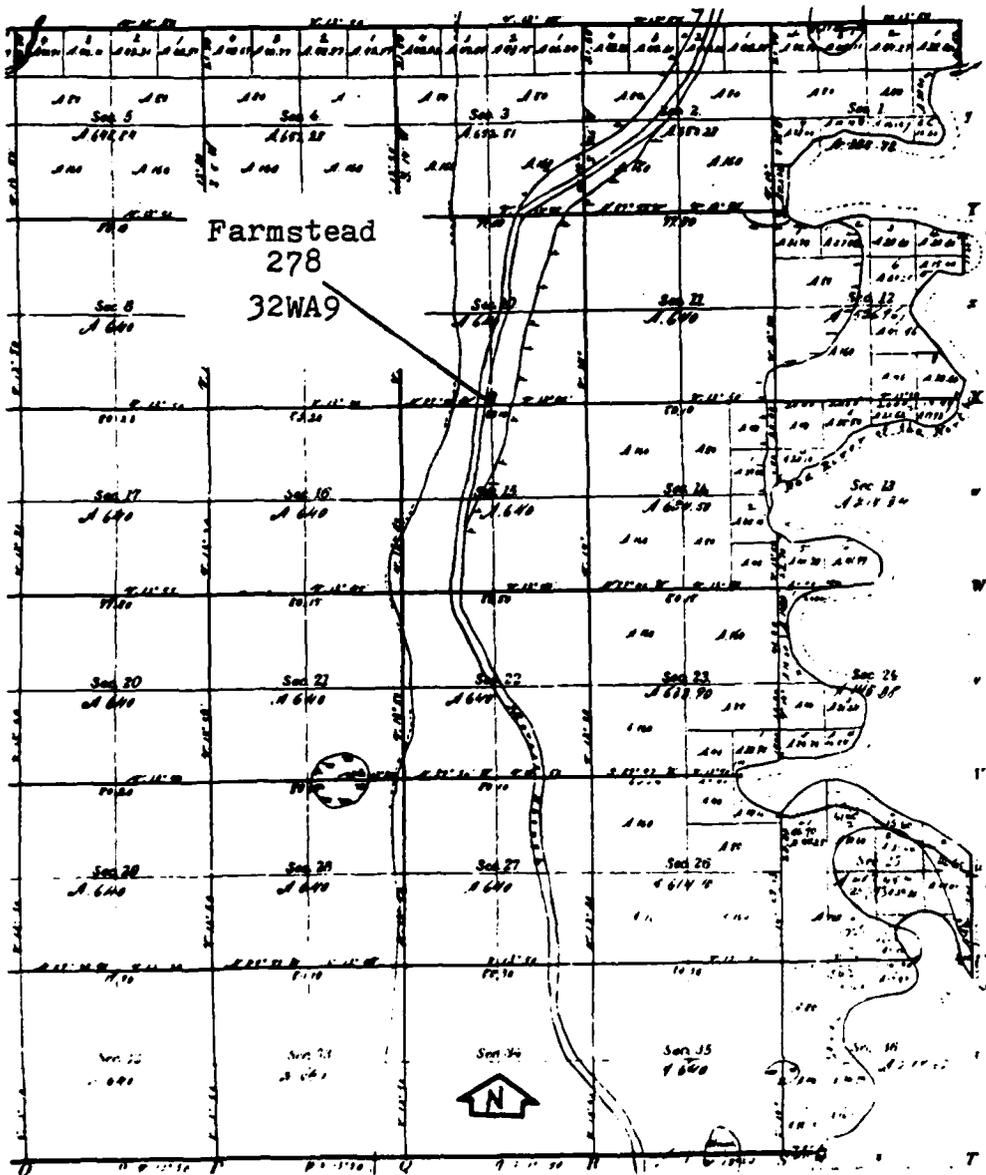


Figure 36. General Land Office Map, T155N, R51W, ca. 1873.



a



b

Figure 37. a. Photograph of site 32WA9, looking north.
b. Photograph of Roy's Fur Trading Post site, looking northeast.

portions of the site since the site occurs adjacent to the farmstead.

Roy's Fur Trading Post

<u>Legal Location</u> N½ NW¼	<u>Section</u> 25	<u>Township</u> 157N	<u>Range</u> 51W
Farmstead Number		none	
Map Quad		Big Woods NW	
Type of Remains		none visible	
Distance from Farmstead		not applicable	
Elevation		242 meters	
Vegetation		none, plowed	
Estimated Size		not known	
Surface Visibility		100 percent	
Topography		terrace	
Distance to Nearest Water		200 meters	
Soil Association		FfA, Fargo silty clays	
Cultural Affiliation		historic, 1797-1800	
Approximate Site Measure		not known	

Description

A local historian, John Rolczynski, has conducted extensive records and literature searches and has come to believe this is the location of Roy's Post (Figs. 29, 30 and 37b). Some interested friends of John Rolczynski have recovered flintlock gun parts from the site area with the aid of metal detectors. The archaeology survey team examined the area where the post is reported to be. Since no surface artifacts were recovered, the site is considered a significant site lead and warrants further examination.

Roy's Fur Trading Post, located near the Red River, was one of the earliest Euro-American settlements in what is now the state of North Dakota. Vincent Roy started a fur trading post for the North West Company in October, 1797. Very little is known about the post other than the fact that Chaboillez and a geographer, David Thompson, both recorded a visit to the post in March, 1798.

Recommendations

This site lead, which may represent Roy's Post, potentially contains significant remains. The fact that this post was one of the first Euro-American settlements in what is now the State of North Dakota should make the site potentially significant. However, because the site lead is not associated with a particular farmstead, it is not likely to be adversely impacted by proposed ring levee construction. However, for future construction projects in the vicinity of the site lead, it is recommended that appropriate action be taken to preserve the site's integrity before it is inadvertently destroyed by construction or farming activities.

Chapter 6

Site Locational Patterns, Site Frequencies and Phase II and Phase III Cultural Resource Recommendations

Site Locational Patterns

Introduction

An examination of sites with respect to soil association, as defined by the Soil Conservation Service, is an informative method for developing predictive models for site locations. Another method for developing predictive models for site locations is the use of distinct physiographic features within a region. Both of the above methods are used to develop predictive models for locating prehistoric and historic sites in the Red River Ring Levee Project area, Pembina and Walsh counties, North Dakota. Fortunately, the soils of both Pembina and Walsh counties have been surveyed and mapped by the Soil Conservation Service. Table 13 shows the soil types which have either farmsteads and/or archaeological sites associated with them and Table 14 shows the soil types which do not have sites or farmsteads associated with them in the project area. Most of the recorded sites occur on terraces of major rivers and tributaries.

Associations Between Site Types and Soil Types

There are 123 and 101 defined soil types (not mutually exclusive) in Walsh and Pembina counties, respectively. Table 13 lists the descriptions of 60 soil types which are associated with either the farmsteads within the levee project area and/or prehistoric and historic sites in both counties. Only 20 soil types are associated with the 28 known archaeological sites, including sites recorded during the present survey, in Walsh County (Tables 15 and 16). A total of 30 soil types (not mutually exclusive, some also occur in Walsh County) are associated with the 50 known archaeological sites, including sites recorded during the present survey, in Pembina County (Tables 17 and 18). The 78 recorded archaeological sites in both Walsh and Pembina counties occur on only 45 mutually exclusive soil types.

Tables 15 and 17 show some associations between site types, topography, soil types, and impediments in Pembina and Walsh counties. However, the Red River Ring Levee Project is confined to a narrow land area adjacent to, and paralleling the Red River. The 314 farmsteads within the project area are associated with 21 soil types (of which 15 types are not associated with either prehistoric or historic sites) (Table 19).

Of the 50 recorded sites in Pembina County, which includes those found during this survey, only seven are associated with or are adjacent to proposed levee construction around farmsteads (Table 20). Only two of these

Table 13

Soil Types in Pembina and Walsh Counties
Which Have Sites and Farmsteads Associated With Them

<u>Symbol</u>	<u>Soil Name</u>
AuA	Arvilla sandy loam, nearly level
BaC2	Barnes loam, rolling, eroded
Bm	Bearden silt loam
BnA	Bearden silty clay loam, 1 to 3 percent slopes
Br	Bearden silty clay loam, saline
BvA	Bearden and Glyndon silt loams, 1 to 3 percent slopes
BwB	Binford sandy loam, 3 to 6 percent slopes
Bx	Borup silt loam
ByA	Brantford loam, 1 to 3 percent slopes
ByB	Brantford loam, 3 to 6 percent slopes
ByD	Brantford loam, 9 to 25 percent slopes
CaA	Cashel silty clay, 1 to 3 percent slopes
CaB	Cashel silty clay, 3 to 6 percent slopes
CbB	Claire loamy coarse sand, 1 to 6 percent slopes
Ce	Coe soils
Ch	Colvin silty clay loam
DdA	Divide loam, 1 to 3 percent slopes
Do	Dovray silty clay
EmA	Emden fine sandy loam, 1 to 3 percent slopes
EmB	Emden fine sandy loam, 3 to 6 percent slopes
FaA	Fairdale silty clay loam, 1 to 3 percent slopes
FaB	Fairdale silty clay loam, 3 to 6 percent slopes
Fd	Fairdale silt loam, occasionally flooded
Fe	Fairdale and LaPrairie soils, channeled
Ff	Fargo silty clay
FfA	Fargo silty clay, 1 to 3 percent slopes
FhA	Fargo-Hegne silty clays, level
GaA	Gardena very fine sandy loam, 1 to 3 percent slopes
GfA	Glyndon silt loam, 1 to 3 percent slopes
GlA	Glyndon silt loam, level
Gm	Glyndon silt loam, saline
Gr	Grano silty clay
Gs	Grano-Hegne silty clays
HfA	Hecla sandy loam, 1 to 3 percent slopes
HgE	Hecla and Maddock soils, 9 to 25 percent slopes
HlA	Hecla loamy sand, 1 to 3 percent slopes
HlB	Hecla loamy sand, 3 to 6 percent slopes
HmA	Hegne-Fargo silty clays, 1 to 3 percent slopes
Hn	Hegne silty clay, saline
Lp	La Prairie silt loam

<u>Symbol</u>	<u>Soil Name</u>
LrA	La Prairie silty clay loam, 1 to 3 percent slopes
LrB	La Prairie silty clay loam, 3 to 6 percent slopes
Lu	Ludden silty clay
MaB	Maddock loamy sand, 3 to 6 percent slopes
MbA	Maddock sandy loam, 1 to 3 percent slopes
MbB	Maddock sandy loam, 3 to 6 percent slopes
OeA	Overly silt loam, level
PyA	Poppleton loamy sand, 1 to 3 percent slopes
Ra	Rauville silt loam
ReB	Renshaw loam, 3 to 9 percent slopes
Rp	Rough broken land
Rr	Ryan-Fargo silty clays
Sr	Sioux-Renshaw complex
SsE	Sioux and Renshaw soils, steep
SuA	Svea-Barnes loams, 1 to 3 percent slopes
SwA	Swenoda fine sandy loam, 1 to 3 percent slopes
VwA	Vang-Walsh loams, 1 to 3 percent slopes
WaA	Wahpeton silty clay, 1 to 3 percent slopes
WaB	Wahpeton silty clay, 3 to 6 percent slopes
ZgD	Zell-Gardena very fine sandy loams, 9 to 15 percent slopes

Table 14

Soil Types in Pembina and Walsh Counties Which Do Not Have
Known Archaeological or Historic Sites and Farmsteads
Associated With Them

<u>Symbol</u>	<u>Soil Name</u>
An	Antler stony clay loam
Ao	Antler clay loam
Ar	Arveson sandy loam
As	Arveson-Fossum fine sandy loams
At	Arveson-Fossum loams
AuB	Arvilla sandy loam, gently sloping
Av	Arveson loam
Aw	Arveson soils, very wet
BaC	Barnes loam, rolling
BaD	Barnes loam, 9 to 20 percent slopes
BbD2	Barnes-Buse loams, hilly, eroded
Be	Barnes-Buse stony loams
BgC	Barnes-Renshaw loams, rolling
BhD	Barnes-Sioux complex, hilly
BkB	Barnes-Svea loams, gently undulating
BkB2	Barnes-Svea loams, gently undulating, eroded
B1A	Barnes-Svea stony loams, nearly level
B1C	Barnes-Svea stony loams, rolling
BnB	Bearden silty clay loam, 3 to 6 percent slopes
BnC	Bearden silty clay loam, sloping
Bo	Bearden silty clay loam, fans
BrA	Bearden silty clay loam, saline, 1 to 3 percent slopes
Bs	Bearden-Colvin silty clay loams
Bt	Bearden silty clay
Bu	Benoit loam
Bv	Borup silt loam
BwA	Binford sandy loam, 1 to 3 percent slopes
BwC	Brantford-Vang loams, sloping
ByC	Brantford loam, 6 to 9 percent slopes
ByE	Buse-Barnes loams, steep
Ca	Cashel silty clay, channeled
CcE	Cashel soils, steep
Cd	Clayey breaks, Cavour complex
Cf	Colvin silt loam
Cg	Colvin silt loam, saline
Co	Colvin silty clay loam, very wet
CoA	Cormant loamy sand, 1 to 3 percent slopes
EbA	Edgeley loam, nearly level
EbB	Edgeley loam, gently undulating
EbC	Edgeley loam, undulating
EgA	Egeland loam, 1 to 3 percent slopes
EgB	Egeland loam, 3 to 6 percent slopes
EmC	Emden sandy loam, sloping

<u>Symbol</u>	<u>Soil Name</u>
EnA	Emden loam, level
Fa	Fairdale silt loam
Fg	Fargo silty clay, depressional
FhB	Fargo-Hegne silty clays, gently sloping
GaB	Gardena silt loam, gently sloping
Gb	Gilby loam
GbA	Gilby loam, 1 to 3 percent slopes
Ge	Gilby loam, wet
Gh	Gilby stony loam
GdA	Glyndon loamy very fine sand, 1 to 3 percent slopes
GIB	Glyndon silt loam, gently sloping
Ha	Hamar loamy fine sand
Hb	Hamar fine sandy loam
Hd	Hamar and Ulen sandy loams
HdA	Hecla loamy fine sand, 1 to 3 percent slopes
HdB	Hecla loamy fine sand, 3 to 6 percent slopes
HfB	Hecla sandy loam, 3 to 6 percent slopes
He	Hamerly-Cresbard loams
HgA	Hamerly-Svea loams, nearly level
HgB	Hamerly-Svea loams, gently undulating
Hh	Hegne silty clay, saline; Hattie silty clay, lacustrine
HmB	Hegne-Fargo silty clays, 3 to 6 percent slopes
Hs	Hegne silty clay, strongly saline-alkali
Kn	Kloten complex
La	Lamoure silt loam
LbA	Lankin loam, 1 to 3 percent slopes
LeA	Lankin loam, level
LgA	Lankin and Gilby stony loams, 1 to 3 percent slopes
Lk	Lankin clay loam
LnA	Lankin and Svea loams, nearly level
LnB	Lankin and Svea loams, gently sloping
LpA	La Prairie loam, 1 to 3 percent slopes
Lr	La Prairie silty clay loam
LvD	La Prairie-Fairdale silty clay loams, channeled, 9 to 25 percent slopes
Ly	Ludden and Ryan soils
MaA	Maddock loamy sand, 1 to 3 percent slopes
McB	Maddock loamy sand, thin surface variant, 1 to 6 percent slopes
Mk3	Maddock-Hecla complex, severely eroded
Mf	McDonaldsville silty clay
Mn	Manfred soils
Na	Nahon silt loam
Ng	Neché silty clay loam

<u>Symbol</u>	<u>Soil Name</u>
Nh	Neché silty clay
Oa	Ojata silt loam
OgB	Olga silty clay loam, 3 to 6 percent slopes
OgE	Olga silty clay loam, 9 to 25 percent slopes
OlA	Overly silty clay loam, level
OlB	Overly silty clay loam, gently sloping
OlC	Overly silty clay loam, sloping
Om	Overly silty clay loam, fans
OvA	Overly silty clay loam, 1 to 3 percent slopes
Ow	Overly silty clay, fans
Pa	Peat; Parnell silty clay loam
Pt	Parnell and Tonka soils
Pu	Perella silty clay loam
RbA	Renshaw loam, 1 to 3 percent slopes
ReA	Renshaw loam, nearly level
RfB	Renshaw very stony loam, 1 to 6 percent slopes
Ro	Rockwell fine sandy loam
RoA	Rolette silty clay loam, 1 to 3 percent slopes
SnD	Serden sand, 6 to 15 percent slopes
SvA	Svea-Cresbard loams, nearly level
Tf	Tiffany fine sandy loam
ToA	Towner sandy loam, level
Un	Ulen sandy loam
Va	Vallers loam, saline
Vh	Vallers-Hamerly loams
Vm	Vallers-Hamerly stony loams
VaA	Vang loam, 1 to 3 percent slopes
VbA	Vang clay loam, 1 to 3 percent slopes
VnA	Vang-Brantford loams, nearly level
VwB	Vang-Walsh loams, 3 to 6 percent slopes
Vy	Vang loam, wet variant
WaC	Wahpeton silty clay, 6 to 9 percent slopes
WhC	Walsh loam, 6 to 9 percent slopes
WhD	Walsh loam, 9 to 15 percent slopes
WlA	Walsh loam, sand substratum, nearly level
WlB	Walsh loam, sand substratum, gently sloping
Wm	Walsh silt loam
WnA	Walsh clay loam, 1 to 3 percent slopes
WoA	Waukon loam, 1 to 3 percent slopes
WoB	Waukon loam, 3 to 6 percent slopes
WoC	Waukon loam, 6 to 9 percent slopes
WoD	Waukon loam, 9 to 15 percent slopes
Wv	Wheatville very fine sandy loam
ZgC	Zell-Gardena very fine shady loams, 6 to 9 percent slopes
ZgE	Zell-Gardena silt loams, steep

Table 15

Walsh County Sites and Their Topographic and Soil Type Associations

<u>Site</u>	<u>Topography</u>	<u>Site Type</u>	<u>Soil Type</u>	<u>Soil Impediments</u>
32WA1	Tributary	mounds	Sr ,AuA,ReB	N,M-S
32WA2	Flat lands	historic	HmA	S
32WA3	Tributary	historic	BnA	M
32WA4	Tributary	historic	BnA	M
32WA5	Tributary	historic	Fd	M-S
32WA6	Flat lands	historic	HmA	S
32WA7	Red River	historic	FhA,HmA	M-S
32WA8	Tributary	lithics	FhA	M-S
32WA9	Tributary	lithics	HmA	S
32WA101	Flat lands	historic	SuA	M
32WA301	Tributary	lithics	Ra	S
32WA302	Tributary	lithics	H1A	M
32WA303	Tributary	lithics	SsE	M-S
32WA304	Tributary	Bison kill	Fd	M-S
32WA305	Tributary	lithics	H1A	M
32WA306	Tributary	lithics	H1A	M
32WA307	Flat lands	lithics	OeA	M
32WA308	Flat lands	lithics	ReB,H1A	M-S
32WA309	Tributary	lithics	OeA	M
32WA310	Tributary	lithics	EmA	N
32WA311	Tributary	lithics	Ce,Lp	M-S
32WA400	Tributary	lithics	H1B	M
32WA401	Tributary	mound,lithic	Fe	S
32WA402	Tributary	mound,lithic	BaC2	M-S
32WA403	Tributary	lithics	EmA	N
32WA404	Tributary	lithics	EmA,EmB	N
32WA405	Tributary	lithics	EmA	N
32WA406	Tributary	historic	EmA	N
Roy's Post	Red River	historic	FfA	S

Campsite Impediments

N = none
M = moderate
M-S = moderate-to-severe
S = severe

Table 16

Walsh County Soil Types and Site Frequencies

<u>Soil Type</u>	<u>Soil Impediments</u>	<u>Site Numbers</u>
AuA	N	32WA1
BaC2	M-S	32WA402
BnA	M	32WA3, 32WA4
Ce	M-S	32WA311
EmA	N	32WA310, 32WA403, 32WA404, 32WA405, 32WA406
EmB	N	32WA404
Fd	M-S	32WA5, 32WA304
Fe	S	32WA401
FhA	M-S	32WA7, 32WAB
H1A	M	32WA302, 32WA305, 32WA306, 32WA308
H1B	M	32WA400
HmA	S	32WA2, 32WA7, 32WA6
Lp	M-S	32WA311
OeA	M	32WA307, 32WA309
Ra	S	32WA301
ReB	S	32WA1, 32WA308
Sr	M	32WA1
SsE	M-S	32WA303
SuA	M	32WA101
WaA	S	32WA9

There are 123 soil types defined in Walsh County, known sites occur on 20 of these soil types

Campsite Impediments

- N = none
- M = moderate
- M-S = moderate-to-severe
- S = severe

Table 17

Pembina County Sites and Their Topographic and Soil Type Associations

<u>Site</u>	<u>Topography</u>	<u>Site Type</u>	<u>Soil Type</u>	<u>Soil Impediments</u>
32PB1	Red River	lithics	BnA,CaB, Ff,WaA	M-S
32PB2	Red River	mounds	WaA	S
32PB3	Flat lands	mound	HmA	S
32PB4	Tributary	lithics	CbB	S
32PB5	Red River	historic	BnA	M
32PB6	Flat lands	historic	BnA	M
32PB7	Tributary	historic	LrA	M-S
32PB8	Flat lands	lithic,hist.	Rr	S
32PB9	Flat lands	lithic,hist.	Rr	S
32PB10	Flat lands	historic	Rr	S
32PB11	Flat lands	historic	HmA	S
32PB12	Red River	historic	HmA,WaA	S
32PB13	Tributary	lithic,hist.	CaA,WaA	S
32PB14	Tributary	historic	FaB	M-S
32PB15	Tributary	historic	HfA	N
32PB16	Tributary	historic	FaB	M-S
32PB17	Tributary	lithics	FaB	M-S
32PB18	Tributary	lithics	FaB	M-S
32PB19	Tributary	lithic,hist.	EmA,ZgD	N,M
32PB20	Bluff top	lithic,hist.	BwB,MaB	N,M
32PB21	Bluff top	lithics	MaB	M
32PB22	Bluff top	historic	VwA	N
32PB23	Bluff top	lithic,hist.	EmB,MbA, MbB	N
32PB24	Bluff top	lithics	EmA,EmB, Rp	N
32PB25	Tributary	lithic,hist.	EmB,SwA	N
32PB26	Tributary	lithic,hist.	GaA	N
32PB27	Tributary	lithic,hist.	EmA	N
32PB28	Tributary	lithics	EmA	N
32PB29	Tributary	lithics	EmA	N
32PB30	Tributary	lithics	ZgD	M
32PB31	Tributary	lithic,hist.	WaA	S
32PB32	Tributary	lithic,hist.	FaB,WaA	M-S
32PB33	Glacial beach	historic	HgE,MaB	M-S
32PB34	Tributary	historic	GaA	N
32PB35	Glacial beach	historic	CbB,PyA	M-S
32PB36	Tributary	lithics	EmA	N
32PB37	Tributary	historic	DdA	M
32PB38	Tributary	historic	LrB	M-S
32PB39	Tributary	lithics	FaA	M-S
32PB40	Glacial beach	lithic,hist.	ByA,ByB, DdA	N,M
32PB41	Red River	lithics	BnA	M
32PB42	Red River	lithics	WaA	S
32PB43	Red River	lithic,hist.	WaA	S
32PB44	Red River	lithics	WaA	S

<u>Site</u>	<u>Topography</u>	<u>Site Type</u>	<u>Soil Type</u>	<u>Soil Impediments</u>
32PB45	Red River	historic	HmA,WaA	S
32PB46	Red River	historic	WaA	S
32PB47	Tributary	lithics,hist.	WaA	S
32PB48	Tributary	lithics,hist.	CaA	S
32PB101	Tributary	historic	ByD,LrA, SwA	N,M-S
32PB201	Tributary	lithics	ByA,ByB	N

Soil Impediments

- N = none
- M = moderate
- M-S = moderate-to-severe
- S = severe

Table 18

Pembina County Soil Types and Site Frequencies

<u>Soil Type</u>	<u>Soil Impediments</u>	<u>Site Numbers</u>
BnA	M	32PB1,32PB5,32PB6,32PB41
ByA	N	32PB40,32PB201
ByB	N	32PB40,32PB201
ByD	M-S	32PB101
BwB	N	32PB20
CaA	S	32PB13,32PB48
CaB	S	32PB1
CbB	S	32PB4,32PB35
DdA	M	32PB37,32PB40
EmA	N	32PB19,32PB24,32PB27,32PB28, 32PB29,32PB36
EmB	N	32PB23,32PB24,32PB25
FaA	M-S	32PB39
FaB	M-S	32PB14,32PB16,32PB17,32PB18, 32PB32
Ff	S	32PB1
GaA	N	32PB26,32PB34
HfA	N	32PB15
HgE	M-S	32PB33
HmA	S	32PB3,32PB11,32PB12,32PB45
LrA	M-S	32PB7,32PB101
LrB	M-S	32PB38
MaB	M	32PB20,32PB21,32PB33
MbA	N	32PB23
MbB	N	32PB23
PyA	M	32PB35
Rp	too variable	32PB24
Rr	S	32PB8,32PB9,32PB10
SwA	N	32PB25,32PB101
VwA	N	32PB22
WaA	S	32PB1,32PB2,32PB12,32PB13, 32PB31,32PB32,32PB42, 32PB43,32PB44,32PB45,32PB46, 32PB47
ZgD	M	32PB19,32PB30

There are 101 soil types defined in Pembina County, known sites occur on 30 of these soil types

Campsite Impediments

N = none
M = moderate
M-S = moderate-to-severe
S = severe

Table 19

Farmsteads and Associated Soil Types
(Farmstead Numbers Assigned by Corps of Engineers)

<u>Farmstead</u>	<u>Soil Type</u>	<u>Farmstead</u>	<u>Soil Type</u>	<u>Farmstead</u>	<u>Soil Type</u>
1	HmA*	46	HmA	92	HmA*
2	HmA	47	CaA*	93	HmA
3	BnA*	48	WaA*	94	HmA
4	HmA	49	HmA	95	HmA
5	HmA*	50	HmA	96	HmA*
6	HmA*	51	HmA*	97	HmA
8	HmA*	53	HmA	99	HmA
9	HmA*	54	HmA	100	HmA*
10	HmA	55	HmA	101*	HmA
11	HmA*	56	BnA*	102	HmA*
12	HmA*	57	BnA	103*	Gr
13	CaA	58*	HmA	104	HmA
14	CaA	59	HmA	105	Gr*
15	CaA	60*	WaA	106	HmA
16	HmA*	61	WaA	107	HmA*
17	Ff*	62*	HmA*	108*	HmA
18	CaA	63	HmA	109	WaA
19	CaA	64*	HmA	110	Gr*
20	Ff	65	HmA, WaA*	111	HmA, Do*
21	CaA	66	Gr	112	Gr
22*	CaA	67	WaA*	113	HmA
22A*	CaA	68	HmA*	114*	HmA*
23	CaA	69	HmA	115	HmA, Do*
24*	CaA*	70*	HmA*	116	HmA*
25	CaA*	71	HmA*	117	HmA*
26	CaA	72	HmA	118	HmA*
27	CaA*	73	WaA	119	BnA*
28	CaA	74	HmA	120	GfA, Gm*
29	CaA	75	WaB*	121	GfA*
30	CaA*	76	HmA	122	HmA
31	CaA	77	HmA	123*	HmA*
32	WaA	78	HmA	124	HmA
33*	WaA*	79	HmA	125	HmA
34	HmA*	80	HmA	126	HmA*
35	HmA, WaA	81*	BnA	127	BnA, GfA
36	WaA, BnA*	82	HmA*	128	BvA, Bx*
37	WaA	83	HmA, WaB*	129*	GfA
38	HmA	84	HmA	130	BnA*
39	WaA	85	HmA	131	BnA
40	WaA	86	HmA	132	HmA
41	WaA	87*	HmA*	133*	BnA*
42*	WaA	88	HmA*	134	BnA
43	WaA	89	HmA*	135	GfA*
44	WaA	90	BnA	136*	BnA
45	BnA, Ch	91	HmA, Gr*	137	GfA*

Farmstead Soil Type Farmstead Soil Type Farmstead Soil Type

138	BnA*	187	CaA	235B*	WaA
139	GfA	188	WaA	236*	WaA
140	GfA	189	WaA	237	WaA
141*	GlA	190	HmA*	238	FfA*
142	GlA	191	HmA, Hn	239	HmA
143	BnA*	192	HmA*	240	HmA
144	BnA, GlA*	193	HmA	241	HmA
145	BnA	194	HmA	242*	HmA
146	BnA	195	HmA	243	HmA
147	BnA	196	HmA	244*	HmA
148	BnA*	197	HmA	245*	FhA*
149	BnA*	198	HmA*	246	FhA
150	HmA	199	HmA, Gs*	247	HmA
151	BnA, WaA*	200	HmA	248	HmA
152	WaA*	201	HmA	249*	HmA
153	BnA*	202	HmA	250	HmA
154	HmA*	203	HmA	251	HmA
155	FfA*	204	WaA	252	HmA
156	HmA	205	WaA	253*	Lu, WaA*
157	WaA, BnA	206*	CaA	254	HmA
158	FhA	207	WaA	255	HmA
159	FhA	208	WaA	256	HmA*
160	FhA	209*	WaA	257	HmA
161	FhA	210	HmA, Hn	258*	HmA*
162	HmA	211	FhA	259	Gs*
163	FhA	212	HmA*	260	WaA*
164	WaA	213	HmA*	261	WaA
165	FfA	214	HmA	262	WaA
166	FhA	215*	HmA	263	WaA*
167*	FfA*	216	HmA*	264	WaA
168	HmA	217*	HmA*	265	HmA
169*	HmA*	218	HmA	265A	HmA
170	HmA*	219	HmA	266	HmA*
171	WaA*	220	HmA*	267	HmA
172*	HmA	221	HmA*	268	FfA
173	HmA	222	HmA	269*	WaA
174	HmA*	223	HmA	270	WaA
175	WaA	224	HmA	271	WaA
176	WaA	225	HmA*	272	WaA*
177	FhA*	226	HmA*	273	WaA
178*	HmA	227	FhA	274	WaA
179	HmA, Gs	228	FhA*	275*	WaA, FfA
180	HmA*	229	FfA*	276	WaA
181	HmA*	230	WaA*	277	WaA*
182	HmA	231	WaA*	278*	WaA
183	HmA	232	WaA	279*	HmA
184	HmA	233*	WaA*	280	HmA
185	FfA*	234	WaA	281	BnA
186	WaA	235A	WaA	282	HmA, Gs

Farmstead Soil Type Farmstead Soil Type Farmstead Soil Type

283	FhA	292	BnA	302	WaA*
284	WaA	293	Bm, BnA	303*	CaA
285	FfA	294	BnA*	304	WaA
286*	WaA*	295*	BnA*	305	WaA
287	WaA*	296	BnA	306	Gs*
288	WaA	297	HmA	307	HmA
289	FfA	298	WaA	308*	BnA
290	FhA	299	FfA	309	BnA
290A*	FfA*	300	WaA	310	BnA
291	BnA, Br*	301	FfA		

The following farmsteads were observed by the field crew to already have ring levees around them

Farmstead

60
86
113
164
166
206
215
235B
257
269
296
303
308

Farmstead No.* = Part of 15 percent sample survey

Soil Type * = no house present or house is abandoned

seven sites (32PB41 and 32PB45) are associated with occupied houses which have not yet built their own levees (farmstead numbers 35 and 136). Two sites, 32PB43 and 32PB44 are associated with Farmstead Number 60, which already has a levee constructed around it.

Of the 28 recorded sites in Walsh County, which includes those found during this survey, only four are associated with or are adjacent to proposed levee construction (Table 20). Only one site, 32WA9, is associated with an occupied house (farmstead number 278). The other three sites are associated with abandoned houses. Therefore, if the Corps of Engineers only constructs levees around occupied houses, then only two known sites (32PB41, Farmstead 136; 32PB45, Farmstead 35) may be adversely impacted by levee construction in Pembina County and only one site (32WA9, Farmstead 278) may be adversely impacted in Walsh County (Table 20). Because the ring levee project restricted survey to farmstead locations, this bias in site locational information for the whole counties (Pembina and Walsh) is undoubtedly reflected in the following conclusions. However, the following inferences and hypotheses provide a basis for future research.

Each soil type has been assigned a degree of campsite suitability by the Soil Conservation Service. Campsite suitability is dependent upon a number of factors, among them the steepness of slope, proneness to flooding, and rate of permeability. The four campsite suitability classifications are: (1) none-to-slight impediments (N); (2) moderate impediments (M); (3) moderate-to-severe impediments (M-S); and (4) severe impediments (S).

Relatively speaking, sites are most frequently associated with four soil types (Tables 16 and 18): 1) Embden fine sandy loam (EmA, EmB; 15 sites, 19 percent); 2) Fairdale silty clay loam (FaA, FaB; 8 sites, 10 percent); 3) Wahpeton silty clay (WaA, WaB; 13 sites, 17 percent); and 4) Hecla loamy sand (H1A, H1B; 5 sites, 6 percent). However, the 78 recorded sites in Pembina and Walsh counties are associated with a total of 45 mutually exclusive soil types (Tables 16 and 18).

Prehistoric sites are most frequently associated with soils having none-to-slight and severe campsite impediments (Table 21) (Figs. 38, 39 and 40). Sites also occur on soils with moderate and moderate-to-severe impediments. Sites associated with severe and moderate-to-severe impediments were probably specialized procurement and activity sites. During seasons with high precipitation these sites would have been uninhabitable.

Historic sites are most frequently associated with soils having severe campsite impediments. Sites also occur uniformly with soils with none-to-slight, moderate, and moderate-to-severe impediments (Table 21) (Figs. 41, 42 and

Table 20

Site Numbers and Their Associated Farmstead Numbers and Soil Types

<u>Site Number</u>	<u>Farmstead Number</u>	<u>Soil Type</u>	<u>Sample</u>	<u>Informants</u>
32PB41	136	BnA	Yes	No
32PB42	+ 48	WaA	No	Yes
32PB43	* 60	WaA	No	Yes
32PB44	* 60	WaA	Yes	No
32PB45	35	WaA	No	Yes
32PB46	x 48	WaA	No	Yes
32PB47	x 33	WaA	Yes	No
32PB48	x 24	CaA	Yes	No
32WA6	x 224	HmA	No	Yes
32WA7	x 177	FhA	No	Yes
32WA8	x 245	FhA	Yes	No
32WA9	278	WaA	Yes	No

Sample: Sites found by conducting the 15 percent stratified random sample.

Informants: Sites found by interviewing local residents.

* = farmsteads with levees already built around them

+ = site not associated with proposed levee project

x = abandoned or destroyed farmsteads

Sites While Conducting 15 Percent Random Sample Survey and Their River Associations and Farmstead Status

<u>Site</u>	<u>Topography</u>	<u>Occupied with no Levee</u>
32PB41	Red River	yes
32PB44	Red River	no
32PB47	Tributary	no
32PB48	Tributary	no
32WA8	Tributary	no
32WA9	Tributary	yes

Red River Ratio of Occupied versus Abandoned Farmsteads: 1:1

Tributary Ratio of Occupied versus Abandoned Farmsteads: 1:3

Table 21

Site Components and Associated Campsite Impediments

Pembina County

<u>Soil Impediment</u>	<u>Prehistoric Percentage</u>		<u>Historic Percentage</u>	
None-to-Slight	15	33%	12	24%
Moderate	7	16%	10	20%
Moderate-to-Severe	5	11%	9	18%
Severe	17	38%	18	38%
Unknown	1	2%	-	-
<hr/>				
Total	45	100%	49	100%

Walsh County

None-to-Slight	4	20%	1	10%
Moderate	6	30%	3	30%
Moderate-to-Severe	7	35%	3	30%
Severe	3	15%	3	30%
<hr/>				
Total	20	100%	10	100%

Pembina and Walsh Counties

None-to-Slight	19	29%	13	22%
Moderate	13	20%	13	22%
Moderate-to-Severe	12	18%	12	20%
Severe	20	31%	21	36%
Unknown	1	2%	-	-
<hr/>				
Total	65	100%	59	100%

Pembina County Prehistoric Sites

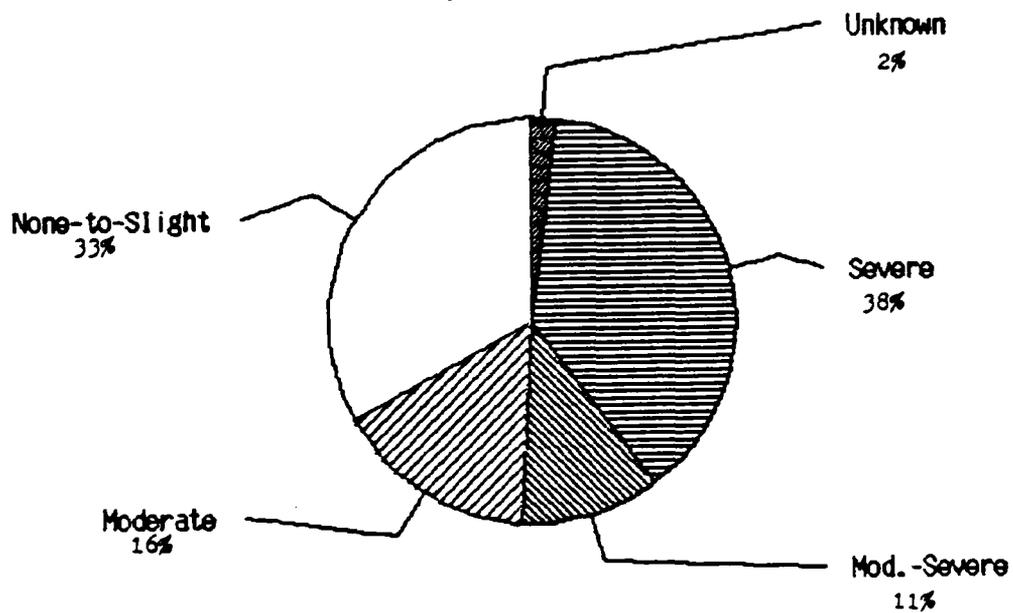


Figure 38. Pie-chart showing percentage of prehistoric sites in Pembina County associated with soils of different campsite impediments.

Walsh County Prehistoric Sites

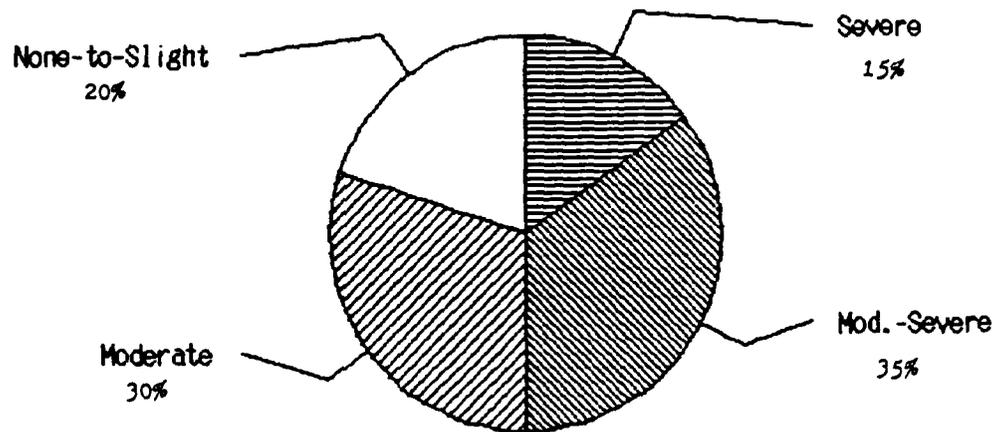


Figure 39. Pie-chart showing percentage of prehistoric sites in Walsh County associated with soils of different campsite impediments.

All Prehistoric Sites

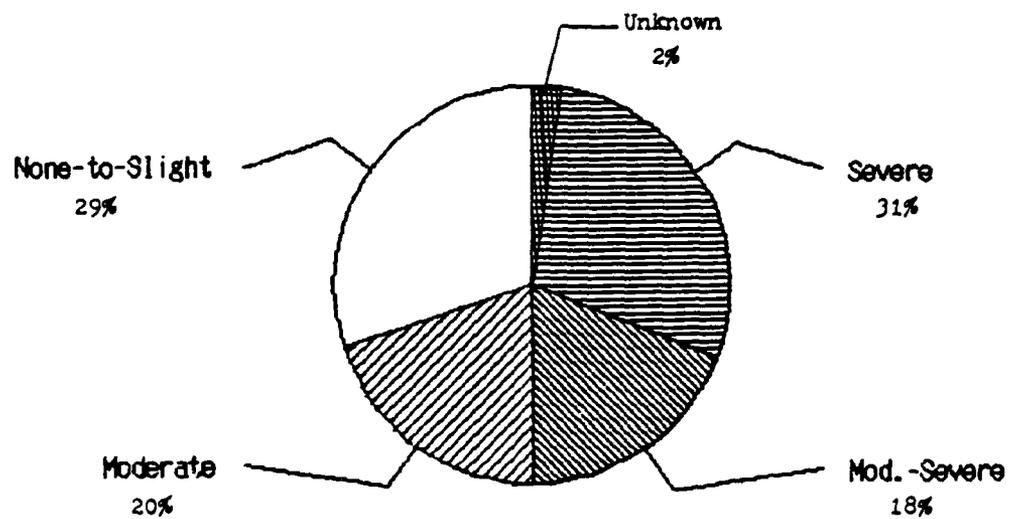


Figure 40. Pie-chart showing percentage of prehistoric sites in Pembina and Walsh counties associated with soils of different campsite impediments.

43). This phenomenon may be partially explained by the fact that the earliest Euro-American settlers were not familiar with the local environment and initially built residences in flood prone areas. These areas were also wooded, similar to the eastern woodland environment from which many of the first settlers had come and were familiar with. After having lived in the area for a number of years, settlers became familiar with the environment and began residing in more suitable areas (some remained in the less desirable locations to the present day) (Roberts 1981:559). Also, with extensive agriculture and recent construction of levees along portions of the Red River and its tributaries in Minnesota and North Dakota, areas within the Lake Agassiz Plain which have historically experienced little flooding are now subjected to frequent floods.

Examination of the soil associations of sites recorded in Pembinito occur (EmA, EmB; FaA, FaB; WaA, WaB, H1A, H1B) (Tables 16 and 18). Also, as important, are the soil types which would not have sites associated with them (Table 14).

A sampling design using soil types to stratify the 314 farmsteads is another approach that may be used to help determine which soil types potentially have archaeological sites associated with them. However, such an approach would require stratifying the 314 farmsteads according to the 21 soil types on which they are associated. If a 15 percent sample is drawn from each of the 22 stratified samples, yielding a total sample size of 47 farmsteads, then the frequencies of soil type samples would be too low to be of any statistical value. Therefore, it is believed by the authors that the present study, utilizing topographic situations for stratifying the farmsteads, is the most appropriate and useful approach.

Associations Between Site Types and Topographic Features

Known sites in Pembina and Walsh counties tend to be associated with two of five topographic features: (1) the Red River environs; (2) the environs of the major tributaries; (3) the flat lands environs; (4) the bluff tops; and (5) the old beaches of Glacial Lake Agassiz. Tables 15 and 17 show the topographic associations of the sites in Pembina and Walsh counties.

The majority of sites are associated with terraces of the Red River and its major tributaries (Table 22) (Figs. 44, 45 and 46). These sites are usually located within 0.5 mile (0.4 kilometer) of the rivers and/or old abandoned meanders (oxbow lakes). Sites located on bluff tops and beaches of Glacial Lake Agassiz are confined to the western portions of Pembina and Walsh counties, where there is more relief to the topography. Sites located on the flat lands are mostly either historic sites (farmsteads) or are small, prehistoric campsites. The small prehistoric sites located on the flat

Pembina County Historic Sites

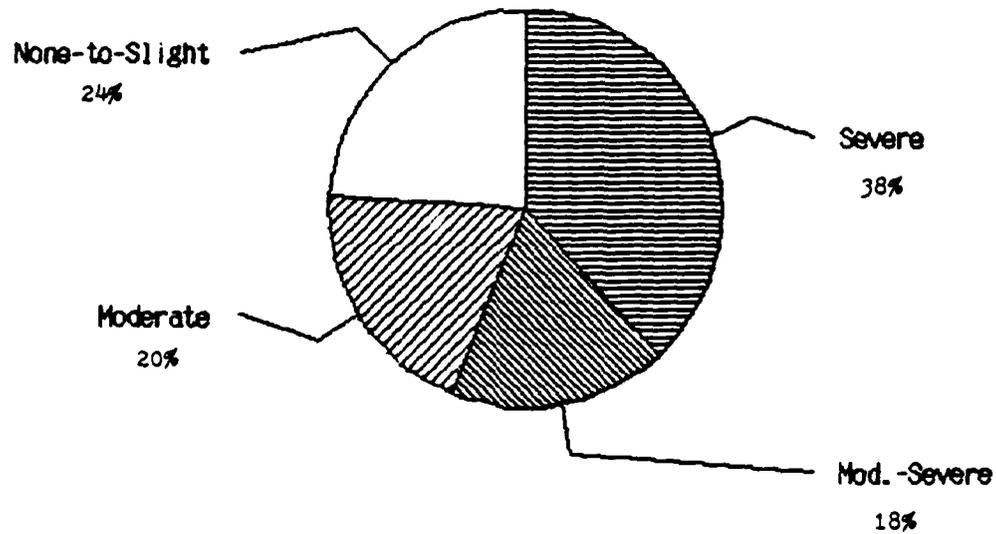


Figure 41. Pie-chart showing percentage of historic sites in Pembina County associated with soils of different campsite impediments.

Walsh County Historic Sites

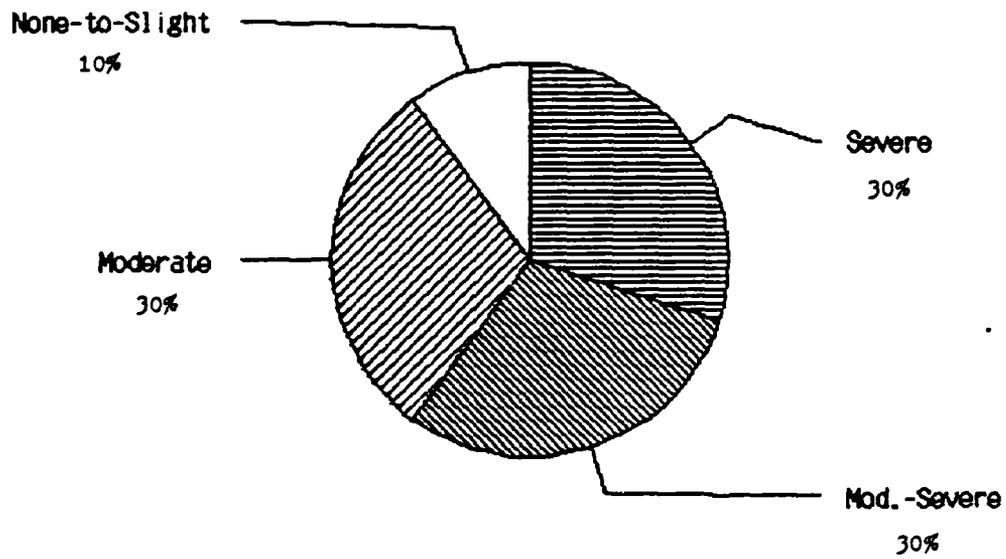


Figure 42. Pie-chart showing percentage of historic sites in Walsh County associated with soils of different campsite impediments.

All Historic Sites

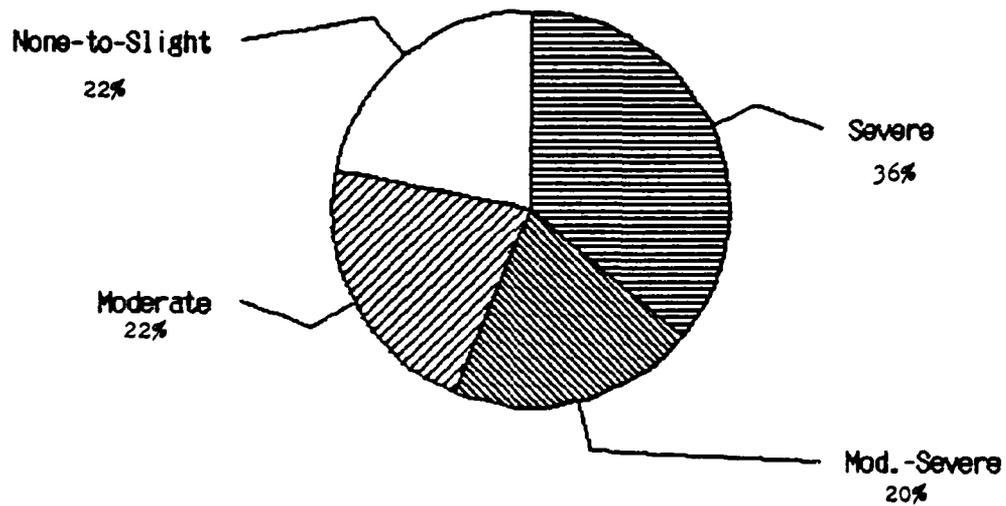


Figure 43. Pie-chart showing percentage of historic sites in Pembina and Walsh counties associated with soils of different campsite impediments.

Table 22

Frequencies and Percentages of Sites Associated With the
Five Physiographic Sub-Areas Within
Pembina and Walsh Counties

Pembina County

<u>Physiographic Sub-Area</u>	<u>Frequencies</u>	<u>% of Total</u>
Red River of the North	10	20%
Tributaries	26	52%
Flat Lands	6	12%
Bluff Tops	5	10%
Glacial Lake Agassiz Beaches	3	6%
	—	—
Total	50	100%

Walsh County

Red River of the North	1	4%
Tributaries	22	78%
Flat Lands	5	18%
	—	—
Total	28	100%

Pembina and Walsh Counties

Red River of the North	11	14%
Tributaries	48	62%
Flat Lands	11	14%
Bluff Tops	5	6%
Glacial Lake Agassiz Beaches	3	4%
	—	—
Total	78	100%

Pembina County Sites and Physiography

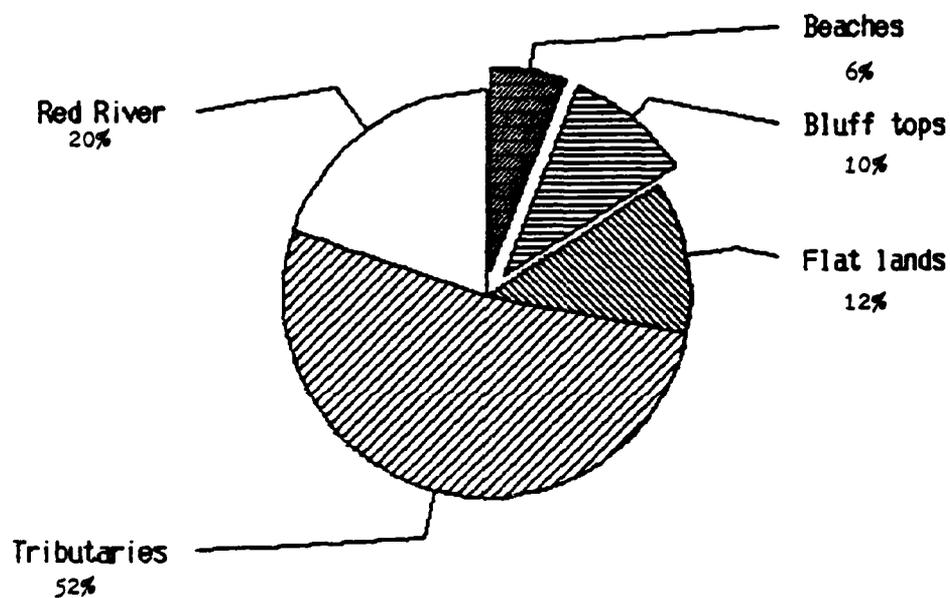


Figure 44. Pie-chart showing percentage of sites in Pembina County associated with five physiographic sub-areas.

Walsh County Sites and Physiography

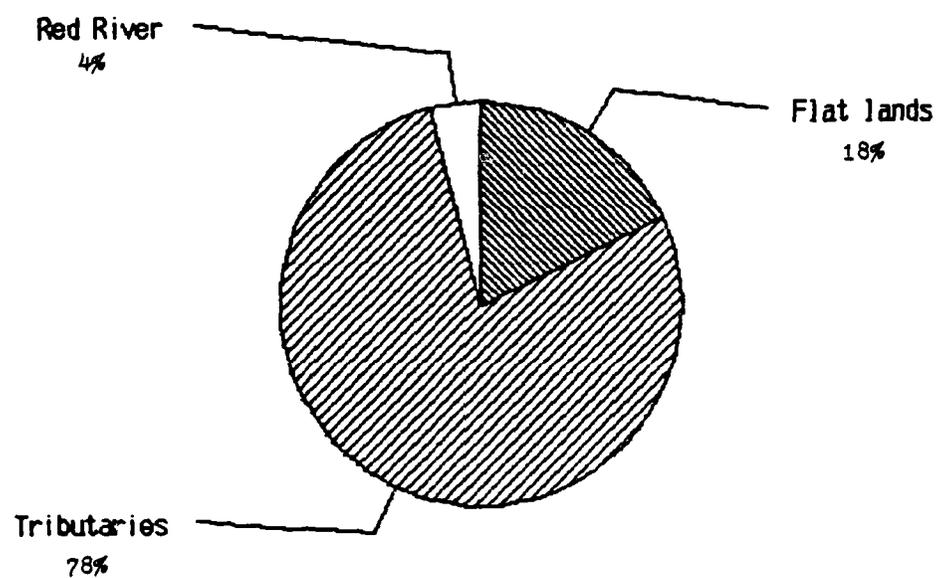


Figure 45. Pie-chart showing percentage of sites in Walsh County associated with three physiographic sub-areas.

All Sites and Physiography

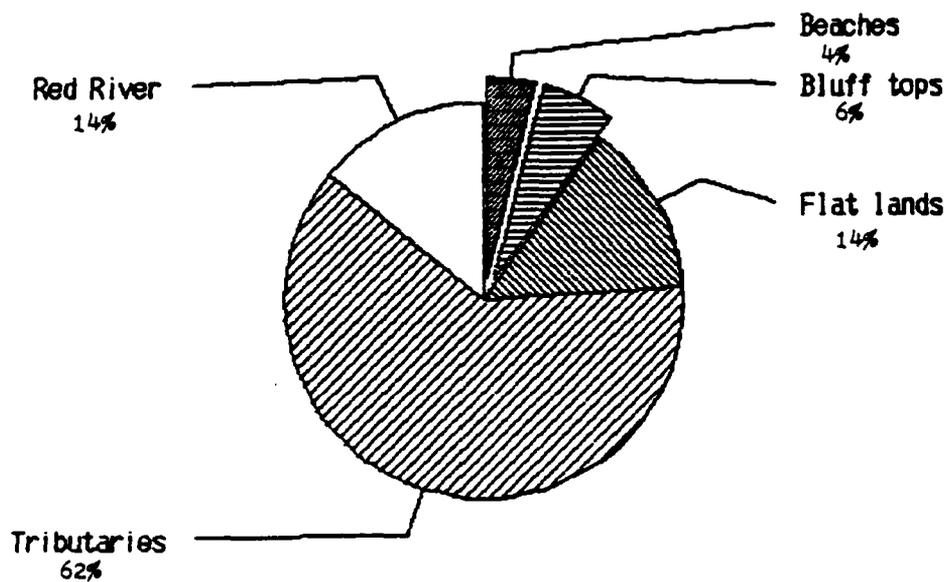


Figure 46. Pie-chart showing percentage of sites in Pembina and Walsh counties associated with five physiographic sub-areas.

lands probably represent the remains of temporary camps of transient groups of hunters and gatherers. Some of the sites are located adjacent to "wallow" areas, which are seasonally wet and may have been used by large game animals, such as bison, for "wallows". These areas would have been suitable for the procurement of bison and other game animals using the "wallows".

Survey Results and Site Frequencies

The present Phase I survey yielded 12 new recorded sites and one significant site lead. However, only six of the sites were found while conducting the 15 percent, stratified, random sample. The other six sites were recorded from information provided by local informants (Table 20). The 15 percent, stratified, random sample included examination of 13 farmsteads within the Red River physiographic sub-area (Table 10), 12 farmsteads within the major tributary physiographic sub-area (Table 11), and 22 farmsteads on the flat lands (Table 12). Survey of the three samples resulted in recording: (1) two sites with prehistoric components within the Red River physiographic sub-area (32PB41 and 32PB44); (2) four sites, within the tributary physiographic sub-area, with prehistoric and/or historic components or find spots (32PB47, 32PB48, 32WA8, 32WA9); and (3) no sites within the flat lands.

Since the survey samples, which yielded six sites, were randomly selected from a stratified universe, predictions can be made concerning the number of sites that can be expected to occur at the remaining 267 farmsteads within the Red River Ring Levee Project. Table 23 (Fig. 47) shows the expected number of sites to be found within the levee project area based upon the occurrence of the six sites found during the 15 percent stratified random sample survey. A 100 percent survey of all farmsteads within the ring levee project can be expected to yield approximately 13 sites associated with the farmsteads located adjacent to the Red River, 26 sites associated with the farmsteads located along major tributaries, and probably less than three sites associated with farmsteads located on the flat lands. However, because 67 percent (4) of the sites found during the 15 percent sample survey are associated with either inhabited farmsteads which already have ring levees and/or are associated with abandoned or destroyed farmsteads, the number of archaeological sites which may be expected to require Phase II testing can be greatly reduced by not building ring levees around the above types of farmsteads. If only inhabited farmsteads, which do not have ring levees, are surveyed then the expected number may be reduced to only about seven sites associated with farmsteads located adjacent to the Red River and seven sites associated with farmsteads located along major tributaries (Table 20).

The purpose of a statistical sampling strategy is to help reduce bias in developing inferences about phenomena

Table 23

Expected Site Frequencies for all 314 Farmsteads

	<u>Red River</u>	<u>Tributaries</u>	<u>Flat Lands</u>
Total Farmsteads	87	80	147
15% Sample Size	13	12	22
Sites Actually Recorded During 15% Sample Survey	2	4	0
Expected Site Numbers	13	26	0-3
Percentage of Farmsteads Which May Have Sites	15%	33%	probably less than 2%

Expected Site Frequencies

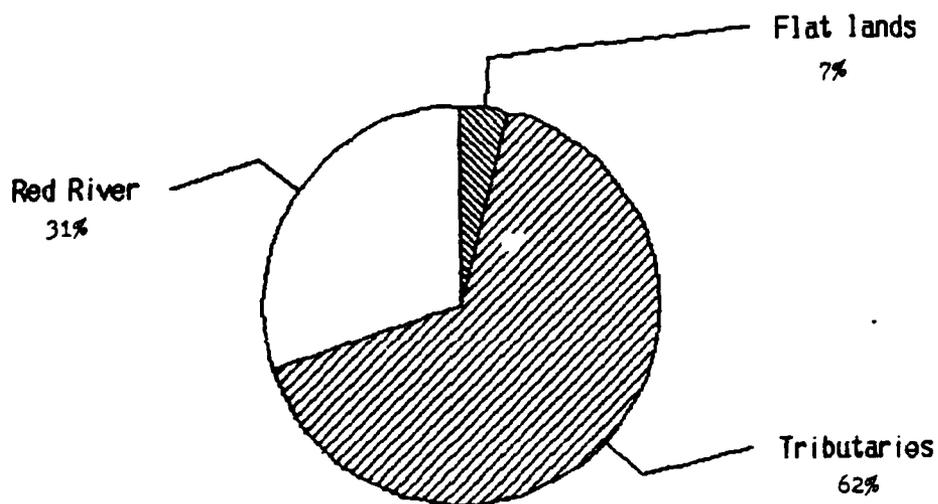


Figure 47. Pie-chart showing percentage of sites which may be expected to be found associated with farmsteads located in three physiographic sub-areas based upon the 15 percent stratified random sample.

under study (Chenhall 1975:3; Rogge and Fuller 1977:238). The present study is based upon a stratified, random sample of 15 percent of the universe (the universe being all 314 farmsteads within the levee project). Results indicate archaeological sites are most likely to be associated with farmsteads situated along major tributaries of the Red River at a frequency of approximately 33 percent. Sites are most likely to be associated with farmsteads situated adjacent to the Red River at a frequency of approximately 15 percent. Less than two percent of the farmsteads located on the flat lands are likely to have archaeological sites associated with them.

It is the authors' contention that because of the nature of the archaeological data (site locations), it is useful to distinguish between a "sampled population" (farmsteads) and a "target population". The distinction between the two is where in the first (sampled population) (Doran and Hodson 1975:95): generalizations from sample to sampled population may be based on statistical theory either because the scientist himself has chosen the sample in a theoretically valid manner or because it is reasonable to act as if such a sampling procedure has taken place; the second where any generalization must be based on expertise and common sense, since the relationship between sample and target population is not under the scientist's control and cannot reasonably be specified mathematically.

In the present study, and in many archaeological studies involving statistical sampling methods (Doran and Hodson 1975:95), it is more appropriate to view the sample as being for a target population, since there is no method or procedure to locate all archaeological sites which existed in a given area. Therefore, common sense and professional expertise, in conjunction with the results of the 15 percent sample led to the previously stated generalizations regarding probable site locations. The authors recommend that most, but not all, Phase II and Phase III cultural resource investigations be focused on farmsteads located adjacent to the Red River and its tributaries. The knowledge acquired from the sample survey will help to more effectively use available funds and resources in future project research.

The higher probability of finding sites located along the Red River and its tributaries as opposed to the flat, relatively featureless lands, supports the model proposed by Michlovic (1983a) that the region was heavily utilized by Woodland and Late Prehistoric peoples. In addition, Michlovic (1982a,b) reports sites along the Red River, and probably its tributaries, are most oftentimes situated inside meanders. This is not the case with the present study. Of the 12 new sites reported, none occur within river meanders, but rather on the outside of meanders. Michlovic (1982a,b) reports

earlier Archaic peoples probably extensively utilized the Red River environs but because of extensive alluviation and meandering of the river they are more deeply buried and/or have been destroyed by scouring (Michlovic 1983a, 1983b).

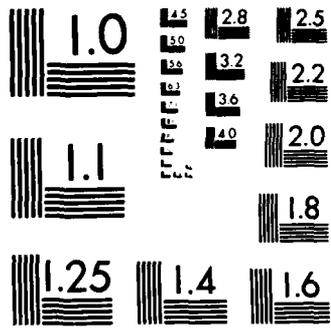
Examination of the 7.5 minute topographic maps readily indicates the Red River does not have a stable channel, but rather frequently meanders within a rather narrowly defined corridor 300 to 760 meters (1000 to 2500 feet) wide. The frequent meandering, and consequently new channel cutting and old channel filling, is a consequence of periodic floods. Recent floods in the levee project area are well documented. There is evidence that major floods, which inundated large portions of the lower terraces of the Red River are not a recent, post-agricultural phenomena. Accounts of major floods in 1825 and 1851 (Thomson 1969:19,21) indicate flooding was a hazard to year-round residence along the Red River.

Though the Red River has probably been confined to the present day corridor for several thousand years, its frequent meandering, as evidenced by the 7.5 minute topographic maps, indicates much land alteration has occurred along the river. The geomorphic processes of terrace development and alluviation have undoubtedly destroyed sites adjacent to the Red River. The fact that more deeply buried Archaic occupations occur one to two meters deep (Michlovic 1983b) indicates substantial aggradation has occurred in specific environs along the Red River.

Evidence obtained from the present study of a 15 percent stratified, random sample indicates the higher probability of finding archaeological sites located along major tributaries of the Red River as opposed to along the Red River. This deviates slightly from the findings of Michlovic. One explanation for this may be attributed to the more frequent meandering and greater erosion along the Red River, consequently destroying archaeological sites. The apparent non-random occurrence of site locations in Pembina and Walsh counties can be attributed to the dynamics of the cultural systems which left their remains and to natural phenomena such as geomorphic processes which have altered the archaeological record.

Michlovic's work (1982a,b; 1983a,b) in Norman County, Minnesota is oftentimes referenced concerning the presence of deeply buried Archaic components along the Red River. In his study, "the survey was confined to that area where sites were expected to exist in greatest numbers; the floodplain immediately adjacent to the river and the area extending 1/8 to 1/4 mile eastward" (Michlovic 1982b:53). Results of the survey included the locating of 41 sites and find spots. Of these, 31 were situated in meanders in the river and all of the sites are on river levees (Michlovic 1982b:57).

In the present ring levee study, the survey areas were



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

predetermined by the location of Euro-American farmsteads, which are seldom located in meanders or on low-lying levees of the Red River or its major tributaries. Instead, present-day Euro-American farmstead locations are usually situated on the highest ground available within the confines of any given property boundary. Along the Red River and its tributaries, instead of occurring within meanders, which are the most susceptible areas to periodic flooding and alluviation, farmsteads are most oftentimes located on higher terraces outside the periphery of meanders. These areas are, relatively speaking, less likely to be flooded. Therefore, it is not surprising that given this type of sample, no evidence was found for the existence of in situ cultural remains, especially with the very thin surface scatters present.

The probability of locating sites and in situ remains is directly related to the density of artifacts (Nicholson 1983:273-274). In the present study all twelve sites recorded had surface densities of less than one item per 300 square meters (Table 24). Given artifactual densities of this low magnitude the only effective method to locate in situ remains is to

open (usually with power machinery) trenches or pits large enough to permit examination of soil profiles. While this is an excellent means of verifying information or addressing specific questions, the cost of such excavation is prohibitive as a survey technique, and is extremely destructive of site context. The problem with cores is that usually they sample such a small area that they pass through a site without encountering any artifacts (Nicholson 1983:274).

In the present survey, because farmsteads tend to be situated in the least flood prone areas, i.e. on higher terraces, aggradation is less consistent and erosion is more likely to occur. In contrast is the Norman County, Minnesota survey (Michlovic 1982a,b) where only areas most likely to have consistent aggradation were examined. The low densities of cultural remains on the sites recorded during the ring levee survey compared to the high densities of artifacts, particularly ceramics, in the Norman County, Minnesota survey indicates a major difference in the types of sites being found. These differences in sites are believed, by the authors, to be a result of different geomorphic processes and cultural dynamics which created the sites to begin with.

The following scenario is proposed, as a hypothesis, that those sites recorded by Michlovic (1982a,b) represent winter habitation sites of relatively large groups of people. As Michlovic (1982a,b) states, the banks of the Red River Valley would have provided shelter for large game animals, particularly bison, during winter storms. These same river banks during the spring and summer months would have been

Table 24

Approximate Surface Density of Artifacts at Recorded Sites

<u>Site</u>	<u>Farmstead</u>	<u>Square Meters/Item</u>
32PB41	136	312
32PB42	48	993
32PB43	60	333
32PB44	60	500
32PB45	35	-
32PB46	48	-
32PB47	33	500
32PB48	24	450
<hr/>		
	Averages	
	Mean	709
	Median	500
	Mode	500

* = Density figure not used in calculations because only two items were recovered from the site.

very susceptible to flooding. In contrast, the sites located during the ring levee survey, being located generally on higher ground at a greater distance from the Red River, represent small, ancillary hunting and gathering camps of peoples who may or may not have used the Red River Valley in their focal subsistence economy. Also, these small sites would have been more suitable for use during the spring, summer and fall months when river banks and low lying levees and terraces were inundated by floods. Therefore, the authors interpret the contrast in findings between the Norman County, Minnesota survey and the ring levee survey as being complimentary data, as opposed to contrastive data.

Known frequencies and locations of buried Archaic sites are not well represented along the Red River at this time. There is at present no model developed to predict their locations along the Red River (Michlovic 1984 personal communication). Michlovic (1983b, 1984 personal communication) has found two deeply buried Archaic components beneath Woodland components exposed on the surface. Archaic components at both sites (21NR9 and 21NR29) were found by excavating 1 by 1 meter pits to depths of one and two meters, respectively. He believes the most likely occurrence of buried sites are in localities adjacent to the Red River which have been subjected to consistent, periodic inundations and subsequent aggradation, which has buried the earlier Archaic components. In order for prehistoric peoples to use a particular land surface there must be some surface stability. Constant aggradation inhibits the formation of soil horizons and stable land surfaces suitable for habitation (Schmits, Donohue and Mandel 1983:94-109). Michlovic (1982b:57) reports that the sites in Norman County "are situated on river levees". Because of the proximity of the sites to the Red River, and since most of the sites are situated within meanders, the levees on which the sites (Woodland components) occur are probably very recent. The finding of buried Archaic components one and two meters deep is possibly due to removal, through test excavation, of overlying natural levee deposits and encountering the stable surface of the terraces on which the levees occur. In contrast, no natural levees were discerned at any of the sites within the ring levee project. Degraded river banks were examined at farmsteads located near the rivers and no subsurface cultural remains were observed.

Because only two buried sites have been found in this fashion, and since no reliable model has been developed to predict their locations, their occurrence at this time can best be described as problematic. The manual excavation of 1 by 1 meter pits to depths of two meters is a slow, inefficient method for locating large numbers of buried sites since one cannot systematically excavate such pits in every locale. Therefore, more efficient, cost effective methods must be developed to locate deeply buried sites. Such a procedure is presented in the following section on Phase II

recommendations.

Phase II and Phase III Recommendations

Four different approaches to the assessment, evaluation, and mitigation of adverse impacts on the region's prehistoric and historic resources are presented below. The four recommended approaches are:

(1) Windshield Survey: If the Corps of Engineers has not previously determined which farmsteads are abandoned or already have their own ring levees prior to the Phase II investigations, it is recommended that a 100 percent windshield survey of all farmsteads be conducted within the ring levee project area. This would consist of driving to each farmstead to determine whether residences exist or do not exist in the designated Corps areas (numbered farmsteads on 7.5 minute quad maps). The present 15 percent sample survey determined a number of Corps designations are not residences, but rather are graineries, abandoned houses, or the structures shown on the 7.5 minute maps have been destroyed and no longer exist. It is assumed these structures, or lack thereof, would not require construction of ring levees. Also, several farmers have already constructed ring levees around their residences. If the Corps of Engineers has already acquired this information the windshield survey will only be conducted to locate significant standing structures with unique architectural characteristics.

(2) Phase II Pedestrian Reconnaissance: Intensive 100 percent pedestrian reconnaissance may be planned for all farmsteads located within 0.5 mile (0.4 kilometer) of the Red River and its major tributaries. Based upon the 15 percent sample survey, these farmsteads have the highest probability of having prehistoric and/or significant historic components associated with them. A smaller sample survey, possibly of 25 or 30 percent, of the farmsteads located on the flat lands may be warranted to develop a more reliable model for predicting site locations in these areas.

Field methods recommended for the pedestrian reconnaissance is based upon the requirement to locate as many archaeological sites possible, both surface and buried components. A recent study of the effectiveness of four commonly used sampling techniques (shovel testing, one meter square excavation pits, coring, and clamshell digger) indicates the coring technique used in conjunction with microdebitage recovery methods was by far the most effective method for locating both surface and buried archaeological sites. The usefulness of this technique is enhanced in environments which have had little or no aeolian disturbance. Hand augering to collect cores, in conjunction with microdebitage recovery techniques, works best only where a stable environment of aggradation and post-aggradation can be assumed. Poorly drained wetlands are best (Nicholson 1983).

Microdebitage recovery methods include the saving of soil samples from the field cores and returning them to the laboratory for processing. The soils are water screened through 2mm, 1mm and 0.5 mm geologic sieves to recover microdebitage. A recent study shows lithic manufacture produces large amounts of microdebitage as a by-product and this material can be expected to permeate the soil matrix of a site occupation (Fladmark 1982).

It is recommended that the pedestrian reconnaissance incorporate the above microdebitage sampling procedure. A team of two persons each will be required to obtain core samples. Core samples can be taken with the aid of a hand auger, five or six inches in diameter, and soil samples taken at 25 cm intervals to a depth of two meters to be water screened at the field laboratory for the recovery of microdebitage (i.e. eight soil samples per auger core). It is suggested that five to six auger cores be taken from lands adjacent to and surrounding each farmstead which will have a levee constructed around it. This sample size should provide enough data to determine the presence or absence of buried cultural deposits.

(3) Phase II Test Excavation: Test excavation is defined as the systematic digging of regular-size 1 x 1 meter, 1 x 2 meter or 2 x 2 meter pits with the aid of shovels, trowels and soil screens. It is suggested that prior to any test excavation, a controlled, gridded surface collection be made at each site to help elucidate surface patterning of artifact densities and artifact types. The use of 5 x 5 and 10 x 10 meter squares within a Cartesian coordinate grid superimposed over each site may be most effective and efficient. Much can be learned about past cultural behavior at a site on the basis of controlled surface collections (Lewarch and O'Brien 1981:297-342).

Test pits should be placed in a systematic fashion using a Cartesian coordinate grid superimposed over the sites. Testing may also incorporate the use of a backhoe to help expose deeply buried deposits in order to determine their cultural and/or geomorphic context. It is suggested that testing be conducted at all sites adjacent to farmsteads which will have ring levees constructed around them. Sites associated with farmsteads which will be avoided will not warrant testing. It is recommended that 1 x 1 meter and 1 x 2 meter pits be manually excavated. Sites which yield deeply buried microdebitage and/or organic remains during Phase II testing may warrant use of a backhoe to open a trench and/or block for examination of geomorphic and cultural data. The use of mechanized power equipment, such as a backhoe, can greatly reduce field costs and help acquire a more reliable reconstruction of past geomorphic processes and site formation.

Extensive manual excavation of deep pits is very slow and expensive and may best be reserved for Phase III contiguous excavation. Soils manually excavated during Phase II testing should be either dry-screened or water screened through one fourth-inch hardware cloth. Because of the high clay content of the soils along the Red River, water screening may be faster and more cost effective. The primary purpose of Phase II testing should be to determine the significance of sites and their eligibility for nomination to the National Register. It is recommended that sites determined to be significant during Phase II testing should be further investigated by Phase III contiguous excavation, if avoidance procedures are not feasible.

(4) Phase III Avoidance/Contiguous Excavation: Avoidance is defined as the cessation of any activities which may adversely affect a site. Sites associated with farmsteads which have been determined to be significant, and levee construction is planned (i.e., avoidance is not a viable alternative), should be subjected to maximum data recovery methods. Significant architectural sites, such as possible log houses, may be better preserved by construction of levees around their premises to keep out flood waters which tend to more quickly destroy architectural structures.

Contiguous excavation is defined as the manual digging of contiguous 1 x 1 meter pits to obtain a detailed understanding of the architecture, function, and time of use or habitation of a site. The excavation units are arranged in a Cartesian coordinate grid which is superimposed over the site. It is recommended that excavation methods employ manual excavation with the aid of shovels, trowels and soil screens. All soils should be dry sifted or water screened through one-fourth inch hardware cloth. Because of the high clay content of the soils along the Red River water screening may be faster and more efficient where feasible. Soil samples should be taken from excavation units and all feature contents for water flotation to recover microfloral and microfaunal data which may be very useful in reconstructing subsistence patterns, seasonal use of the site, and other pertinent environmental and climatic information.

Deeply buried sites may best be extensively excavated by having overlying, culturally sterile or badly disturbed, soils removed with the aid of mechanized power equipment such as backhoes, dozers and/or earth scrapers. Once culturally sterile or disturbed, overlying soils are removed, a Cartesian coordinate grid can be superimposed over the site and contiguous, manually excavated 1 x 1 meter pits can be dug. It should be emphasized that Phase III contiguous excavation is only recommended for significant sites associated with farmsteads where avoidance procedures or alternatives are not feasible.

Because of the complex nature of the prehistoric and

historic resources within the ring levee project area, each of the above approaches is tailored to the specific needs of a particular type of cultural resource. The following proposal specifies the approximate requirements for conducting each of the above recommendations for the ring levee project.

Windshield Survey

The windshield survey of all farmsteads within the project area is expected to require a person, preferably an historical architect, in a vehicle for a period of seven to eight days (39 to 44 farmsteads per day). All structures should be closely examined to determine the presence of log construction since some log structures were subsequently covered with clapboard siding. It is recommended that significant structures be recorded as architectural sites. This procedure will require approximately \$4,000 to \$5,000.

Pedestrian Reconnaissance

The pedestrian reconnaissance of all inhabited farmsteads located within 0.5 mile (0.4 kilometer) of the Red River and/or its tributaries and a 25 to 30 percent sample of farmsteads on the flat lands is estimated to require two persons, in one vehicle, and a person in the field laboratory to process core samples for the presence of microdebitage, a period of 20 work days. Approximately an equal number of person-days would be required for analysis and report writing. This procedure will require approximately \$20,000 to \$25,000.

Phase II Test Excavation

Based on the expected frequency of only 14 sites associated with inhabited farmsteads which do not already have ring levees and if avoidance is not possible, it is estimated that a crew of four persons would require 30 work days to sufficiently conduct test excavations at all of the sites. This is allowing 1.5 to 2 work days to test each site. Approximately an equal number of person-days would be required for analysis and report writing. This procedure will provide the necessary information for making determination of eligibility for nomination of sites to the National Register. It is estimated this procedure will cost \$35,000 to \$40,000.

Avoidance/Contiguous Excavation

Based on the probability that a maximum of 20 percent (3 sites) of the 14 expected sites (see Phase II test excavation) would warrant avoidance/contiguous excavation, it is estimated that a field crew of 10 persons would require at least 60 work days to complete the necessary field work if avoidance is not feasible. This is allowing for 20 work-days per site. Approximately twice as many person-days would be

required to conduct analyses and report writing. It is estimated that this procedure will cost \$100,000 to \$150,000 if avoidance is not possible at any of the sites. It is recommended that avoidance be considered in favor over contiguous excavation.

Summary

The mitigation of adverse impacts upon prehistoric and historic cultural resources within the ring levee project in Pembina and Walsh counties will require a substantial amount of time and monies. Table 25 summarizes the survey and excavation plans. All cost estimates are in 1983 dollars. The expected costs can be greatly reduced by avoidance procedures or alternative plans.

Table 25

Estimated Costs for Phase II and Phase III Cultural Resource Investigations

<u>Phase</u>	<u>Recommendation</u>	<u>Estimated Cost</u>
II	Windshield survey	\$4,000 to \$5,000
II	Pedestrian Reconnaissance	\$20,000 to \$25,000
II	Test Excavation	\$35,000 to \$40,000
III	Avoidance/Contiguous Excavation	\$100,000 to \$150,000

Chapter 7

Cultural Resource Evaluations and Recommendations

National Register of Historic Places

The Antiquities Act of 1906 (Public Law 59-209) was the first legislation enacted by Congress for the protection of historic and prehistoric archaeological sites situated on lands owned or controlled by the United States Government. The Historic Sites Act of 1935 (Public Law 74-292) was enacted "to preserve for public use historic sites, buildings and objects of national significance for the inspiration and benefit of the people of the United States." The National Historic Preservation Act of 1966 (Public Law 89-665) created the National Register of Historic Places as a list of properties "significant in American history, architecture, archaeology, and culture" (Sec. 101 (a)(1)). Criteria for evaluation and determination of eligibility for nomination to the National Register of Historic Places are set forth in 36 CFR 800.10 (a):

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

a) That are associated with events that have made a significant contribution to the broad patterns of our history; or

b) That are associated with the lives of persons significant in our past; or

c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) That have yielded, or may be likely to yield, information important in prehistory or history.

The National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190) requires federal agencies to consider the environmental impacts of planned projects. As a result, since cultural resources are parts of the environment, federal agencies are required to identify and plan for the protection of cultural resources, both prehistoric and historic, during their project-planning and land management programs. Executive Order 11593 requires federal agencies to identify historic properties under their control or jurisdiction that might qualify for the National Register. The Archaeological

and Historic Preservation Act of 1974 (Public Law 93-291) specifically provides for the preservation of archaeological and historical data "which might otherwise be irreparably lost or destroyed" as the result of federally constructed dams or as the result of any federally funded or assisted construction project, activity, or program.

Archaeological Research and Determination of Site Significance

In accordance with the aforementioned cultural resource management regulations, federal agencies are required to determine the National Register eligibility of archaeological resources under their control. This is accomplished by assessing information and recommendations provided by archaeologists. Raab and Klinger (1977:632) suggest that "the best approach to assessing archaeological significance is in relation to explicit, problem-oriented research designs". Sharrock and Grayson (1979:327) agree that although significance determined in this way is "an excellent reason to ascribe significance in the National Register sense", the converse may not necessarily be true. In other words, just because an archaeological resource is found to be insignificant in terms of a current problem-oriented research design, it does not necessarily follow that the site is, in fact, insignificant. "The 'significance' of a site is clearly subject to change through time, increasing or decreasing as both knowledge and research orientation change" (Sharrock and Grayson 1979:327). This potential problem is anticipated in the National Register criteria. Archaeological resources are significant when they "have yielded, or may be likely to yield, information important in prehistory or history" (36CFR 800.10). As a result, federal agencies bear the burden of proving that sites within their domain are neither significant nor potentially significant. As stated earlier, this is accomplished by acting upon information and recommendations provided by the contracting archaeologist. "The importance of the contracting archaeologist's assessments of significance cannot be overemphasized" (Klinger and Raab 1980:556).

Once a site has been determined not to be significant, it is excluded from further federally funded research and does not receive protective management consideration. Therefore, it is important that the potential significance of an archaeological resource be carefully considered. The full archaeological potential of a site may be difficult to realize if its significance is poorly documented.

Summary of Survey Results

The field reconnaissance and interviews with local informants resulted in recording 12 new sites and one significant site lead, and several additional site leads (Appendix A). The 12 newly recorded sites and one significant site lead contain six prehistoric (including two find spots) and eight historic components. The prehistoric components are

represented by Woodland occupations determined from the presence of pottery and projectile point styles. The historic components are represented by New Fort Pembina (32PB45), Acton Townsite (32WA7), two log houses (32PB46, 32WA6), three farmsteads and Roy's Fur Trading Post.

The Red River of the North Ring Levee Project will likely have future adverse impacts upon cultural resources. Twelve sites and one site lead were investigated in the project area. The following are evaluations of the 12 sites and one site lead recorded during the Phase I cultural resources investigations.

32PB41
Farmstead 136

Site 32PB41 has a single prehistoric component represented by a thin scatter of lithics and ceramics. The ceramics, which are quite small fragments, suggests a Woodland affiliation. Shovel tests did not recover any subsurface cultural remains. Because the farmstead is no longer standing, except for graineries, the Corps of Engineers may decide to eliminate this farmstead from ring levee construction. Avoidance procedures would be feasible.

32PB42
Farmstead 48

Site 32PB42 has a single prehistoric, Late Woodland, component represented by Blackduck pottery ware. The site consists of a thin scatter of stone artifacts and pottery sherds. Shovel tests did not recover any subsurface cultural remains. Because the site is so far removed from farmstead number 48, which is also abandoned, the Corps of Engineers ring levee project is not likely to adversely affect the site.

32PB43
Farmstead 60

Site 32PB43 is a possible multicomponent site with a late 19th century historic occupation and a prehistoric isolated find. The prehistoric component, if there is one, is represented by the recovery of a single chert flake. Shovel tests did not recover any additional data. The historic occupation is represented by a scatter of historic artifacts including spoons, pottery, brick fragments, and a bayonet. The landowner has recovered spoons and a late 19th century style bayonet from the site. The historic occupation may be associated with the U.S. military presence in the region. The possible prehistoric component is treated as an isolated find. Because farmstead number 60 has a ring levee already constructed around it, the Corps of Engineers may decide not to build their ring levee, in which case avoidance is a feasible option.

32PB44
Farmstead 60

Site 32PB44 has a single prehistoric component which has been partially destroyed by construction of a house and ring levee. Shovel tests within the remaining portion of the site did not yield any additional data. Because farmstead number 60 already has a ring levee around it, the Corps of Engineers may decide not to build their ring levee. Therefore, avoidance is feasible.

32PB45
Farmstead 35
New Fort Pembina

New Fort Pembina was constructed in 1870 and used by the U.S. military until 1895. The fort played a major role in the Euro-American settlement of northeastern North Dakota. Although no structures remain of the original fort, informants report subsurface features, such as cellars, do remain. Because the present residence is within the military post, any ground disturbance in the vicinity of the house may destroy subsurface evidence of the military post. Therefore, it is recommended that the site be considered potentially eligible for nomination to the National Register. The present landowners, the Warners, are not too enthusiastic about having a ring levee constructed around their farmstead, which may provide the Corps of Engineers with an option for avoidance.

32PB46
Farmstead 48

Site 32PB46 is a late 19th century log house. It is constructed of squared-off logs which are dove-tailed at the corners. The house has two stories with the first level containing a single large room and the second level containing two bedrooms. The structure is in relatively good condition. It is one of the few remaining log houses in the region. Because it is periodically flooded, construction of a ring levee may help preserve the structure. However, because it is an abandoned farmstead, the Corps of Engineers may decide not to construct a ring levee around it.

32PB47
Farmstead 33

Site 32PB47 is a multi-component site with a prehistoric Woodland occupation and a historic (ca. 1880 to present) farmstead occupation. The historic house has been destroyed and all lands are cultivated. The only standing structures are several wooden and metal graineries. Shovel tests did not yield additional data. A records and literature search did not yield specific information regarding the historic

component. The prehistoric component is assigned to a Late Woodland occupation on the basis of Blackduck pottery ware recovered from the site. Because the farmstead no longer exists, the Corps of Engineers may decide not to construct a ring levee. Avoidance is a feasible alternative.

32PB48
Farmstead 24

Site 32PB48 is a historic site with a possible prehistoric occupation. The historic occupation dates from about 1880 to the present, based upon relative dates obtained by examination of seam molds on bottle necks. The prehistoric occupation is represented by the recovery of a single flake and is considered an isolated find. Shovel tests did not recover any additional data. The historic component is represented by a standing, abandoned house, outbuildings, and scatter of artifactual debris. A literature and records search did not yield specific information regarding the historic occupation. Because the house is abandoned, the Corps of Engineers may decide not to construct a ring levee. Avoidance is a feasible alternative.

32WA6
Farmstead 224

Site 32WA6 is a single component historic farmstead which has a T-shaped log house which was constructed in the 1880's. This is one of the few remaining log houses in the region. The logs are squared and are dove-tailed at the corners. Clapboard siding has been applied over the logs. The house is in good condition. Construction of a ring levee around the structure may help preserve it from damage caused by periodic flooding. However, because it is abandoned, the Corps of Engineers may decide not to construct a ring levee around the structure.

32WA7
Farmstead 177
Acton Townsite

Site 32WA7 is the Acton townsite, which was established in 1879. The town of Aton was one of the largest communities in North Dakota in 1881. It was an important commercial and communication center. The town was the gateway to northeastern North Dakota for many of the original homesteaders in the early 1880's. The town had a population of about 400 people in 1881. However, because the railroad bypassed it, the town was virtually abandoned and/or moved by 1900. The abandoned school, a house and stores remain standing at the town site. There is reported to be an unmarked cemetery somewhere within the boundaries of the town. Its exact location is not known. Because the residence and school are abandoned, the Corps of Engineers may decide not to construct a ring levee around the structures.

Avoidance is a desirable and feasible alternative.

32WA8
Farmstead 245

Site 32WA8 is a prehistoric site which has a probable Woodland occupation based on the recovery of a notched projectile point. The site is represented by a thin scatter of lithic tools and debris. The landowner reported finding stone tools in the site area before the use of large farm machinery. Shovel tests did not yield additional data. Since the farmstead is abandoned, the Corps of Engineers may decide not to construct a ring levee. Avoidance is a feasible alternative.

32WA9
Farmstead 278

Site 32WA9 appears to have a prehistoric component of undetermined affiliation. The site is represented by the recovery of only two flakes. It has been partially destroyed by construction of a house and farm buildings. Shovel tests did not yield additional data. The landowner reported finding stone tools in the site area prior to the 1979 flood. Therefore, the site may have either been destroyed by erosion and scouring or more deeply buried by alluviation. Because the residence is occupied and is situated within the site area, ring levee construction may disturb cultural remains present.

Roy's Fur Trading Post
No Farmstead Number

Roy's Post was established in 1797 and abandoned in 1800. It was one of the first Euro-American settlements in what is now the state of North Dakota. The location of Roy's Post has been misidentified in the literature until recently (Rolczynski 1977). Local interested peoples have recovered flintlock gun parts from the site area with the aid of metal detectors. An examination of the site area by the archaeology team did not yield any artifacts. Because the proposed site location is not associated with any farmstead, this potential site will probably not be affected by construction of ring levees by the Corps of Engineers.

Summary

In summary, the Red River Valley was intensively utilized by Woodland and probably earlier Archaic peoples. Earlier Archaic cultures probably utilized the region, but the sites are of low visibility because they are either deeply buried in alluvium and/or have been destroyed by the meandering of the rivers. Sites are most likely to be located within 0.5 mile (0.4 kilometers) of the Red River and its tributaries. Few sites occur on the flat lands, and when they do occur, they are oftentimes associated with soil types

which have non-to-slight and/or severe campsite impediments. Sites also occur, at lower frequencies, on soils with moderate and moderate-to-severe impediments. Sites associated with soils having moderate-to-severe and severe impediments probably represent fall and winter camps of nomadic hunters and gatherers. These sites would have been uninhabitable during seasons of high precipitation. Sites associated with soils having none-to-slight impediments are more likely to represent permanent camps or villages and/or spring and summer hunting and gathering camps. These sites would have been less desirable for winter use because of their open exposure to severe winter storms.

Historic sites tend to be most commonly associated with soils having none-to-slight, moderate, and moderate-to-severe impediments. This phenomenon may be attributed to the unfamiliarity of flood prone areas in the region by the earliest homesteaders, who were from the eastern woodlands and who established their new residences in wooded areas, which were adjacent to the Red River and/or its tributaries.

The Phase II and Phase III cultural resource investigations can expect to find approximately 13 sites associated with farmsteads located adjacent to the Red River, 26 sites associated with farmsteads located adjacent to major tributary streams, and very few sites associated with farmsteads located on the flat lands. The site locational patterns for Pembina and Walsh counties tend to support the hypotheses proposed by Michlovic (1982b, 1983a,b).

The differences in results of the Norman County, Minnesota survey and the ring levee survey can be interpreted as complimentary data. The following scenario is proposed by the authors. The high densities of artifactual remains of sites located within meanders of the Red River suggests the presence of winter camps of peoples procuring bison found along the banks of the Red River during the winter months. Therefore, an accumulation of cultural debris was possible, and earlier occupations became readily buried by consistent flooding and alluviation. Sites situated on the outside of river meanders on higher terraces having very low artifact densities (like those found during the ring levee survey) may represent small, seasonally used, ancillary hunting and gathering camps. Therefore, artifact densities are low and are not frequently buried due to less susceptibility to flooding on higher terraces. Using the Co-Influence Sphere model proposed by Syms (1977), the winter camps found by Michlovic (1982a,b) may represent the ethnic groups who used the Red River Valley as part of their focal economy while the smaller, possibly spring and summer camps located on higher terraces may represent ethnic groups who only used the Red River Valley occasionally as part of their economy.

Reconstructing past cultural complexes and understanding how peoples lived within the area of the Red River Valley is

a complex task. The recovery of a miniscule amount of cultural remains during the ring levee survey did not allow any broad analysis of the artifactual data. However, examination of all recorded sites in Pembina and Walsh counties and their corresponding soil and topographic associations allows correlations to be made with respect to site types and topographic features and soil complexes. The use of the Co-Influence Sphere model proposed by Syms (1977) helps to integrate the variability in the data base acquired from the Norman County, Minnesota survey (Michlovic 1982a,b) and the ring levee survey.

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APPENDIX A
Site Forms
Site Leads

Field Code USD-136 SITS #
 State 32 County PB Site Number 41
 1 10 11 13 15 18
 Site Name LTL Twp R Sec 000 00 0
19 38 159 5124 8 6 8
 39 40 47 48 49 50
 Map Quad LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a
51 68 69 70 77 78 79 80

1. N½
2. E½
3. S½
4. W½
5. NE¼
6. SE¼
7. SW¼
8. NW¼
9. C

I. SITE I.D.

II. SITE DESCRIPTION

SITE TYPE		CULTURAL MATERIAL		Site Area
1	Conical Timber Lodge	2	Bone (worked)	5 <u>375.0</u> 12 m ²
3	<u>I</u> CM Scatter	4	<u>I</u> Ceramics (Native)	
13	Earthlodge Village	14	Charcoal	
15	Earthworks	16	Copper (Native)	Cultural Depth
17	Fortification	18	<u>I</u> Faunal Remains (skeletal)	19 <u>20</u> 21
22	Grave	23	Fire Cracked Rock	Depth Indicator
24	Hearth	25	Floral Remains	28 <u>5</u>
26	Jump	27	Fossil	
29	Mound	30	Hide, Hair, Fur	
31	Other Rock Features	32	Human Remains	CULTURAL/TEMPORAL AFFILIATION
33	Pit	34	Projectile Point	37 <u> </u> Paleo
35	Quarry/Mine	36	Shell (worked)	40 <u> </u> Archaic
38	Rock Art	39	<u>I</u> Stone, clipped	43 <u>I</u> Late Prehistoric
41	Rock Shelter	42	Stone, ground	46 <u> </u> 47 Historic
44	Stone Circle	45	Trade Good (non-Native)	50 <u> </u> Period Unknown
48	Trail (not recent)	49	Wood (worked)	
51	Miscellaneous	52	Other	
53	Isolated Find	CM Density	Basis for Dating	
		54 <u>I</u>	55 <u>3</u>	

III. ENVIRONMENT

Landform 1	Landform 2	Slope/Exposure	View, degree	View, distance
<u>I</u>	<u>15</u>	<u>10</u>	<u>2</u>	<u>2</u>
56	57 58	59 60	61	62
Elevation	Drainage System		Dist Perm Water	
<u>242</u> m.	<u>RED RIVER</u>		<u>125</u> m.	
63 67	1	21	22 26	
Perm Water Type	Dist Seas Water	Seas Water Type	Ecosystem	
<u>3</u>	<u> </u>	<u> </u>	<u> </u>	
27	28 32	33	34 37	

IV. C.R.M.

Ownership	Site Condition	Collection	Test	Excavation
<u>3</u>	<u>5</u>	<u>3</u>	<u>0</u>	<u> </u>
38	39	40	41	42
Fieldwork Date	Management Recommendation			
<u>5.15.83</u>	<u>4</u>			
43 48	49			

OFFICE USE ONLY

OFFICE USE ONLY					
Soil Association	Ecozone	Area Signf	CR Type	Verified Site	Non-Site
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
41 43	44 45	46	47	48	49
State Register	National Register	E C F	T F	MS Number	
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
50	51	52	53	54	61

Code

Date Code

1. Access Go 1/2 mile south of settling pools at Drayton. Site is north of farmstead in grove of trees on edge of a bend in the Red River.

2. Description of Site Site is on a terrace of the Red River, on the outside portion of a bend in the river. The site is in cultivation and may be buried under alluvium.

3. Description of Cultural Materials (Quantify and identify) flakes, pottery (Blackduck) 3 flakes; 1 shatter, 6 pottery sherds.(body sherds). 2 fresh water mussel shell fragments.

12 # of items of cultural material observed 12 # Collected

4. Artifact Repository University of South Dakota Archaeology Laboratory.

5. Description of Subsurface Testing Shovel tests. Nothing was recovered from the shovel tests.

Recorded by Ken and Marie Brown Date June 5, 1983

6. Current Use of Site crops

7. Owner's Name/Address Raymond E. Kneoff, Drayton, N.D.

8. Vegetation none, plowed

9. Cover (% of visible ground) 100%

10. Man-hours spent on site 4

11. Project Title Red River Farmstead Survey
P.I. Kenneth L. Brown

12. Report Title Red River Farmstead Survey
Author Ken and Marie Brown

13. Other Published References none

14. Description of Collections Observed _____

15. Owner-Address of Collections Observed _____

16. Statement of Integrity _____

17. Statement of Significance Site may contain buried cultural remains which may yield information about the prehistory of the region.

18. Comments/References _____

Recorded by Ken and Marie Brown Date June 5, 1983

TOPO

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

Mark the boundaries of the site on the topographic section.



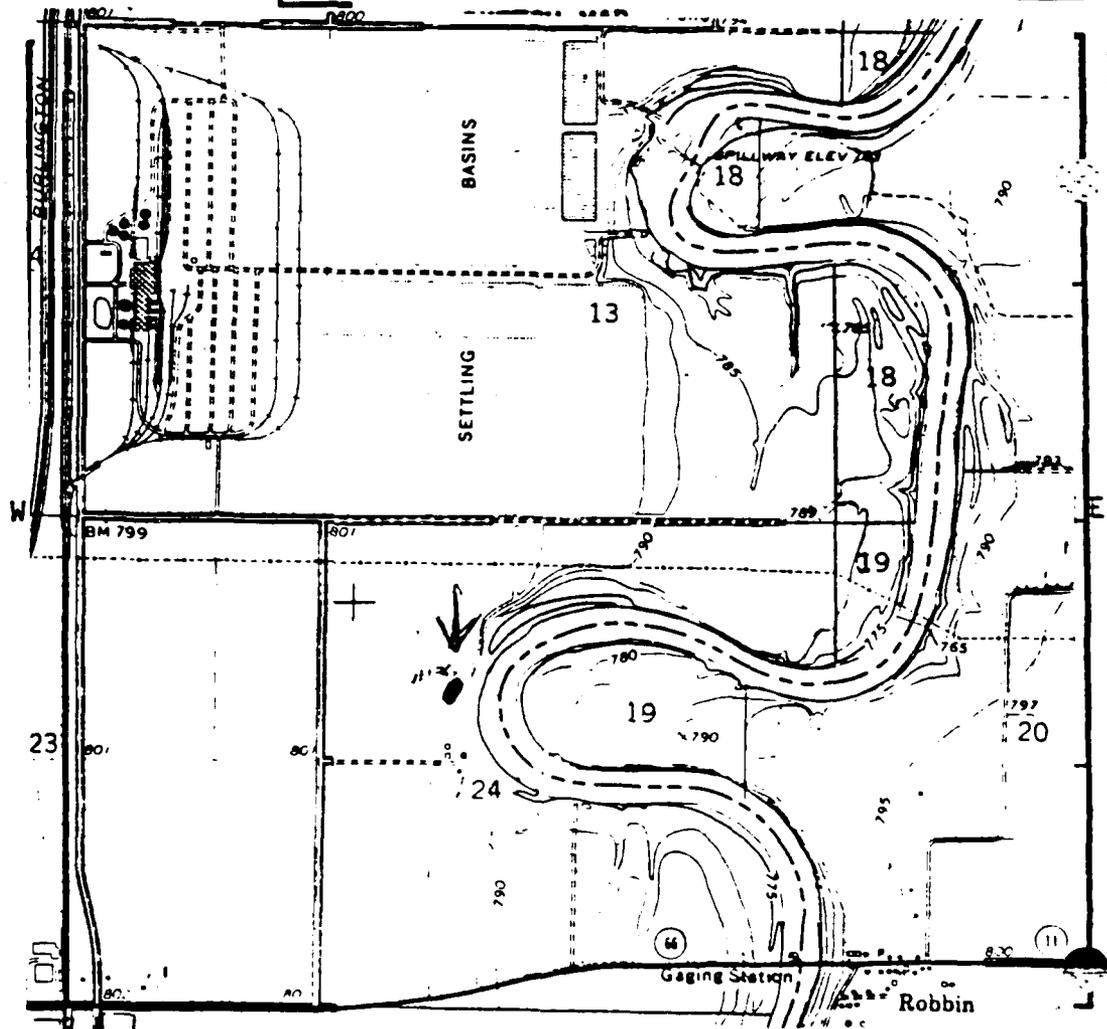
B.W. Color

Photo I.D. Code North

Storage Location _____

Map Key:

Map Scale:



Recorded by Ken and Marie Brown

Date June 5, 1983

I. SITE I.D.

Field Code USD-48 State 32 County PB Site Number 42
 1 _____ 10 _____ 11 _____ 13 _____ 15 _____ 18 _____
 Site Name _____ LTL Twp R Sec QQQ QQ Q
 19 _____ 38 _____ 39 40 _____ 47 48 49 50
 Map Quad PEMBINA LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a
 51 _____ 68 _____ 69 70 _____ 77 78 79 80

1. N $\frac{1}{2}$
2. E $\frac{1}{2}$
3. S $\frac{1}{2}$
4. W $\frac{1}{2}$
5. NE $\frac{1}{4}$
6. SE $\frac{1}{4}$
7. SW $\frac{1}{4}$
8. NW $\frac{1}{4}$
9. C

II. SITE DESCRIPTION

SITE TYPE		CULTURAL MATERIAL		Site Area
1	<input type="checkbox"/> Conical Timber Lodge	2	<input type="checkbox"/> Bone (worked)	5 <u>16.875</u> 12 m ²
3	<input checked="" type="checkbox"/> CM Scatter	4	<input checked="" type="checkbox"/> Ceramics (Native)	
13	<input type="checkbox"/> Earthlodge Village	14	<input type="checkbox"/> Charcoal	
15	<input type="checkbox"/> Earthworks	16	<input type="checkbox"/> Copper (Native)	Cultural Depth
17	<input type="checkbox"/> Fortification	18	<input type="checkbox"/> Faunal Remains (skeletal)	19 <u>20</u> 21
22	<input type="checkbox"/> Grave	23	<input type="checkbox"/> Fire Cracked Rock	
24	<input type="checkbox"/> Hearth	25	<input type="checkbox"/> Floral Remains	Depth Indicator
26	<input type="checkbox"/> Jump	27	<input type="checkbox"/> Fossil	28 <u>5</u>
29	<input type="checkbox"/> Mound	30	<input type="checkbox"/> Hide, Hair, Fur	
31	<input type="checkbox"/> Other Rock Features	32	<input type="checkbox"/> Human Remains	CULTURAL/TEMPORAL AFFILIATION
33	<input type="checkbox"/> Pit	34	<input type="checkbox"/> Projectile Point	37 <input type="checkbox"/> Paleo
35	<input type="checkbox"/> Quarry/Mine	36	<input type="checkbox"/> Shell (worked)	40 <input type="checkbox"/> Archaic
38	<input type="checkbox"/> Rock Art	39	<input checked="" type="checkbox"/> Stone, chipped	43 <input checked="" type="checkbox"/> Late Prehistoric
41	<input type="checkbox"/> Rock Shelter	42	<input type="checkbox"/> Stone, ground	46 <input type="checkbox"/> 47 Historic
44	<input type="checkbox"/> Stone Circle	45	<input type="checkbox"/> Trade Good (non-Native)	50 <input type="checkbox"/> Period Unknown
48	<input type="checkbox"/> Trail (not recent)	49	<input type="checkbox"/> Wood (worked)	
51	<input type="checkbox"/> Miscellaneous	52	<input type="checkbox"/> Other	
53	<input type="checkbox"/> Isolated Find	CM Density	Basis for Dating	
		54 <u>1</u>	55 <u>3</u>	

III. ENVIRONMENT

Landform 1	Landform 2	Slope/Exposure	View, degree	View, distance
<u>1</u>	<u>15</u>	<u>10</u>	<u>2</u>	<u>2</u>
56	57 58	59 60	61	62
Elevation	Drainage System		Dist Perm Water	
<u>239</u> m.	<u>RED RIVER</u>		<u>400</u> m.	
63	67	1	21	22 26
Perm Water Type	Dist Seas Water	Seas Water Type	Ecosystem	
<u>3</u>	<u>28</u> <u>32</u>	<u>33</u>	<u>34</u> <u>37</u>	

IV. C.R.M.

Ownership	Site Condition	Collection	Test	Excavation
<u>3</u>	<u>5</u>	<u>3</u>	<u>0</u>	<u>—</u>
38	39	40	41	42
Fieldwork Date	Management Recommendation			
<u>5.1.483</u>	<u>4</u>			
43	48	49		
Additional Information				
				40

OFFICE USE ONLY

Soil Association	Ecozone	Area Signf	CR Type	Verified Site	Non-Site
<u>41</u> <u>43</u>	<u>44</u> <u>45</u>	<u>46</u>	<u>47</u>	<u>48</u>	<u>49</u>
State Register	National Register	E C F	T F	MS Number	
<u>50</u>	<u>51</u>	<u>52</u>	<u>53</u>	<u>54</u>	<u>61</u>

Code

Date Code

1. Access Go south of Pembina on paved county road, which passes by the airport
go south of Pembina 5 miles, turn east onto gravel and dirt road, go east
3/4 mile. Site is on terrace of the Red River.

2. Description of Site Site is on a prominent terrace edge of the Red River. Site
is in cultivation. It is reported to be on both sides of the road and drainage
canals.

3. Description of Cultural Materials (Quantify and identify) _____
flakes, pottery (Blackduck ? like),
2 endscrapers; 5 flakes; 5 shatter; 1 rimsherd and 4 bodysherds. The pottery
is grit tempered, smooth exterior. The fragments are very small. The rim has
very small cordwrapped stick impressions below the lip. Possible Blackduck ware?

17 # of items of cultural material observed 17 # Collected
 4. Artifact Repository University of South Dakota Archaeology Laboratory.

5. Description of Subsurface Testing Shovel tests. Nothing was recovered from
the shovel tests.

6. Current Use of Site Crops

7. Owner's Name/Address Richard Oakes and Cousin, Pembina

8. Vegetation none, plowed

9. Cover (% of visible ground) 100%

10. Man-hours spent on site 4

11. Project Title Red River Farmstead Survey

P.I. Kenneth L. Brown

12. Report Title Red River Farmstead Survey

Author Ken and Marie Brown

13. Other Published References none

14. Description of Collections Observed none

15. Owner-Address of Collections Observed _____

16. Statement of Integrity _____

17. Statement of Significance Site appears to be a large campsite.

It is potentially significant since there is potentially subsurface cultural remains buried in alluvium.

18. Comments/References _____

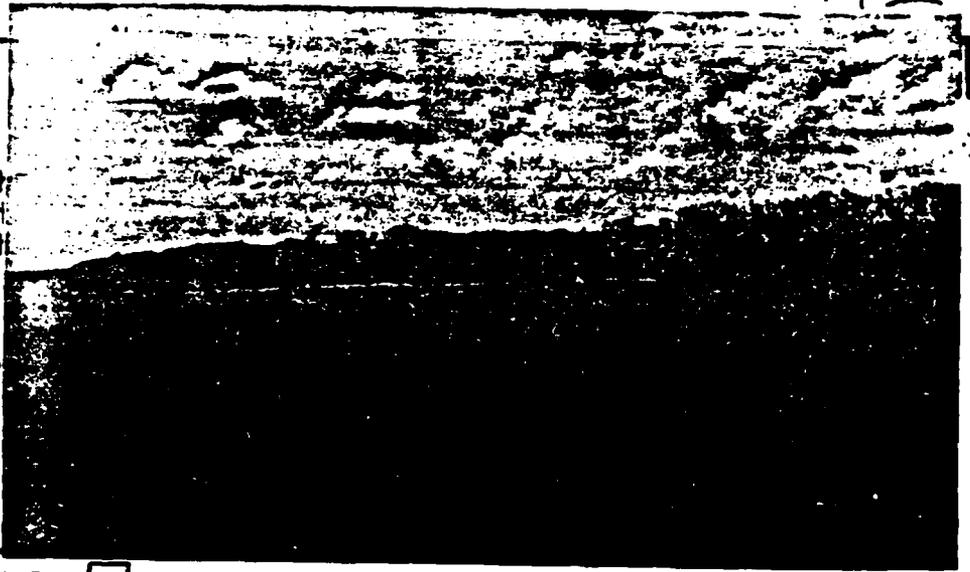
Recorded by Kenneth and Marie Brown Date June 5, 1983

42

TOPO

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

Mark the boundaries of site on the topographic section.

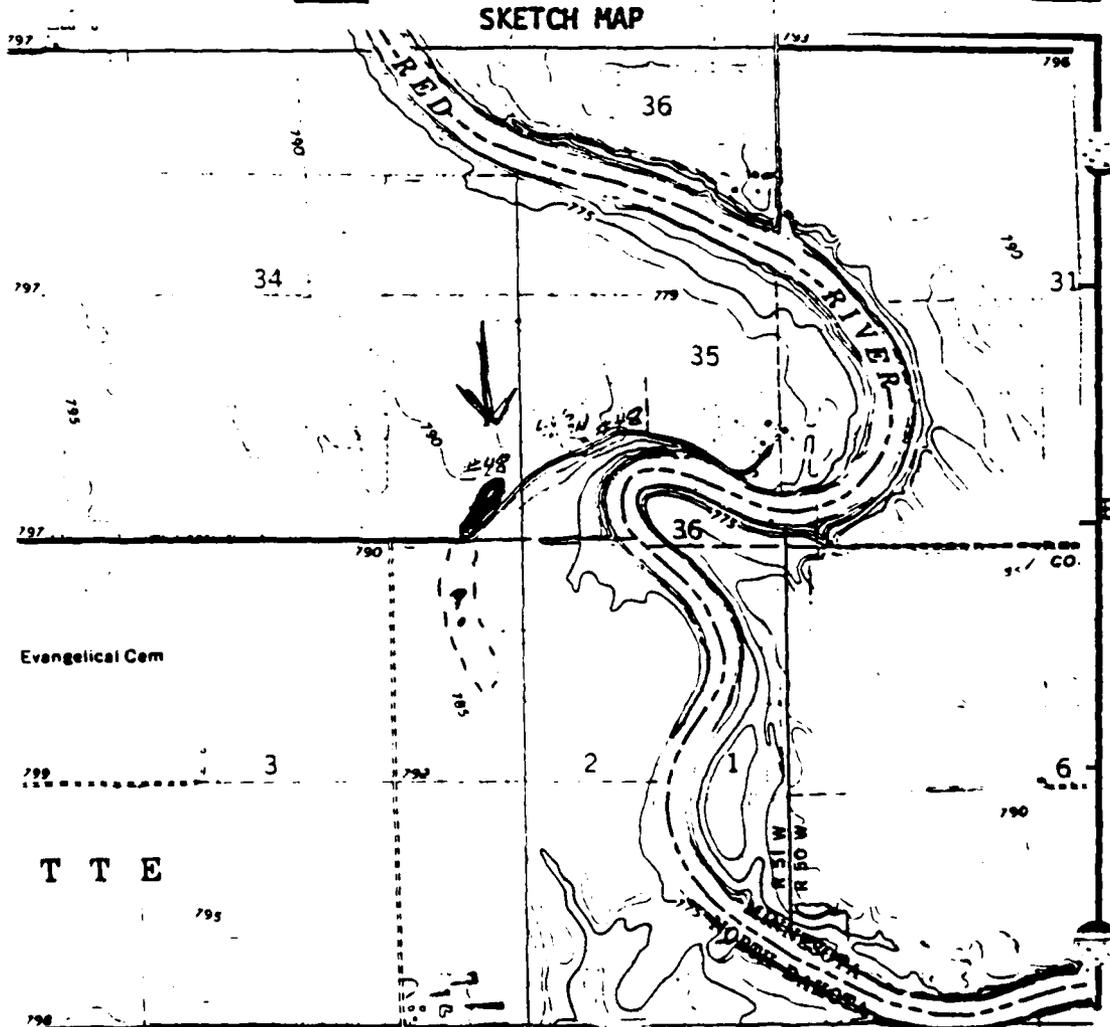


B.W. Color

Photo I.D. Code North

Storage Location _____

Map Key:



Map Scale:

Recorded by Ken and Marie Brown

Date June 5, 1983

I. SITE I.D.#

Field Code USD-60 N SITS #
 State 32 County PD Site Number 43
 1 10 11 13 15 18
 Site Name _____ LTL Twp R Sec QQQ QQ Q
 19 38 39 40 47 48 49 50
 Map Quad _____ LTL^a Twp^a R^a Sec^a QQQ^a QQ^a Q^a
JOLIETTE 51 68 69 70 77 78 79 80

1. N½
2. E½
3. S½
4. W½
5. NE¼
6. SE¼
7. SW¼
8. NW¼
9. C

II. SITE DESCRIPTION

1	Conical Timber Lodge	2	Bone (worked)	Site Area	5 <u>5,000.12</u> m ²
3	CM Scatter	4	Ceramics (Native)	Cultural Depth	19 <u>20</u> 21
13	Earthlodge Village	14	Charcoal	Depth Indicator	28 <u>5</u>
15	Earthworks	16	Copper (Native)	CULTURAL/TEMPORAL AFFILIATION	
17	Fortification	18	Faunal Remains (skeletal)	37	<input type="checkbox"/> Paleo
22	Grave	23	Fire Cracked Rock	40	<input type="checkbox"/> Archaic
24	Hearth	25	Floral Remains	43	<input type="checkbox"/> Late Prehistoric
26	Jump	27	Fossil	46	<input type="checkbox"/> 47 Historic
29	Mound	30	Hide, Hair, Fur	50	<input checked="" type="checkbox"/> Period Unknown
31	Other Rock Features	32	Human Remains		
33	Pit	34	Projectile Point		
35	Quarry/Mine	36	Shell (worked)		
38	Rock Art	39	<input checked="" type="checkbox"/> Stone, chipped		
41	Rock Shelter	42	Stone, ground		
44	Stone Circle	45	Trade Good (non-Native)		
48	Trail (not recent)	49	Wood (worked)		
51	Miscellaneous	52	Other		
53	<input checked="" type="checkbox"/> Isolated Find	CM Density	54 <u>1</u>	Basis for Dating	55 _____

III. ENVIRONMENT

Landform 1 1 Landform 2 15 Slope/Exposure 10 View, degree 1 View, distance 2
 56 57 58 59 60 61 62
 Elevation 241 m. Drainage System RED RIVER Dist Perm Water 200 m.
 63 67 1 21 22 26
 Perm Water Type 3 Dist Seas Water _____ Seas Water Type _____ Ecosystem _____
 27 28 32 33 34 37

IV. C.R.M.

Ownership 3 Site Condition 5 Collection 3 Test 0 Excavation _____
 38 39 40 41 42
 Fieldwork Date 5.14.83 Management Recommendation _____
 43 48 49
 Additional Information _____
 _____ 40

OFFICE USE ONLY

OFFICE USE ONLY
 Soil Association _____ Ecozone _____ Area Signf _____ CR Type _____ Verified Site _____ Non-Site _____
 43 44 45 46 47 48 49
 State Register _____ National Register _____ E C F T F MS Number _____
 51 52 53 54 61

Date Coded _____

I. SITE I.D.

Field Code USA-60 N SITS #
 State 32 County 18 Site Number 43
 11 13 15 18
 Site Name _____ LTL Twp R Sec QQQ QQ Q
 _____ 162 5 114 5 6 6
 19 _____ 38 39 40 _____ 47 48 49 50
 Map Quad _____ LTL^a Twp R^a Sec^a QQQ^a QQ^a Q^a
JOLLETTE _____ 162 5 113 2 2 2
 51 _____ 68 69 70 _____ 77 78 79 80

1. NW
2. E
3. S
4. NE
5. NW
6. SE
7. SW
8. NW
9. (

II. SITE DESCRIPTION

Theme 1	Site Type	Cultural Material	Site Area
1 <u>16</u> 2	3 <u>1</u> CM Scatter	4 <u>1</u> Bone (worked)	5 <u>5000</u> 12 m ²
	13 <u>1</u> Chimney	14 <u>1</u> Ceramics (Euro Am)	Cultural Depth
Theme 2	15 <u>1</u> Depression	16 <u>1</u> Charcoal	21 <u>20</u> 23
17 <u>1</u> 18	19 <u>1</u> Dump	20 <u>1</u> Cloth	Depth Indicator
	24 <u>1</u> Earthworks	25 <u>1</u> Faunal Remains	30 <u>5</u>
	26 <u>1</u> Fortification	27 <u>1</u> Fire Cracked Rock	Occupation Date
	28 <u>1</u> Foundation	29 <u>1</u> Floral Remains	Begin _____ End _____
	31 <u>1</u> Grave	32 <u>1</u> Glass	39 _____ 42 43 _____ 46
	33 <u>1</u> Hearth	34 <u>1</u> Hide, Hair, Fur	Basis for Dating
	35 <u>1</u> Machinery	36 <u>1</u> Human Remains	53 _____ 54
	37 <u>1</u> Quarry/Mine	38 <u>1</u> Masonry	CM Density Isolated Find
	47 <u>1</u> Rock Art	48 <u>1</u> Metal	59 <u>1</u> 60 _____
	49 <u>1</u> Trail	50 <u>1</u> Plastic	
	51 <u>1</u> Wreck (ship)	52 <u>1</u> Rubber	
	55 <u>1</u> Other	56 <u>1</u> Shell (worked)	
		57 <u>1</u> Wood (worked)	
		58 <u>1</u> Other	

III. ENVIRONMENT

Landform 1 1 Landform 2 15 Slope/Exposure 10 View, degree 1 View, distance 2
 61 Elevation _____ 62 63 _____ 64 65 _____ 66 _____ 67 _____
 Drainage System RED RIVER Dist Perm Water 200 m.
 68 Perm Water Type 3 Dist Seas Water _____ Seas Water Type _____ Ecosystem _____
 27 _____ 28 32 _____ 33 _____ 34 37 _____

IV. C.R.M.

Ownership 3 Site Condition 5 Collection 3 Test 0 Excavation _____
 38 _____ 39 _____ 40 _____ 41 _____ 42 _____
 Fieldwork Date 5.14.83 Management Recommendation _____
 43 _____ 48 _____ 49 _____
 Additional Information _____
 1 _____ 40 _____

OFFICE USE ONLY

OFFICE USE ONLY
 Soil Association _____ Ecozone _____ Area Signf _____ CR Type _____ Verified Site _____ Non-Site _____
 41 43 _____ 44 45 _____ 46 _____ 47 _____ 48 _____ 49 _____
 State Registry _____ National Register _____ E C F T F MS Number _____
 50 _____ 51 _____ 52 _____ 53 _____ 54 _____ 60 _____

1. Access Exit off of Interstate 29 at the McArthur Interchange, to south of
McArthur on paved road 2 miles, turn east, go east 2 miles to end of road.
Site is northeast of farmbuildings.

2. Description of Site Site is on a terrace of the Red River, on the north
edge of a outward bend of the river. Historic artifacts indicative of
military use of the site have been recovered (bayonets, etc). The site is
in cultivation.

3. Description of Cultural Materials (Quantify and identify) _____
1 chert flake; 1 silver teaspoon (1840 design);
1 tableware frag; 2 bottle glass frags.; 2 window glass frags.; 5 brick frags.
Bison or Bos: 1 maxillary molar; 1 scapula fragment; 1 2nd phalanx.

The property owner, Sam Kotchman, collected a late 19th century type of
U.S. Army issue bayonet in 1980 or 1981 along with glass, ceramics, etc.
15 # of items of cultural material observed _____ 15 # Collected

4. Artifact Repository University of South Dakota Archaeology Laboratory.

5. Description of Subsurface Testing Shovel Testing. Nothing was recovered from
the shovel tests.

- 6. Current Use of Site crops
- 7. Owner's Name/Address Sam Kotchman
- 8. Vegetation none, plowed
- 9. Cover (% of visible ground) 100%
- 10. Man-hours spent on site 6
- 11. Project Title Red River Farmstead Survey
P.I. Kenneth L. Brown
- 12. Report Title Red River Farmstead Survey
Author Ken and Marie Brown
- 13. Other Published References none
- 14. Description of Collections Observed _____

- 15. Owner-Address of Collections Observed _____
- 16. Statement of Integrity _____

- 17. Statement of Significance Site may potentially be buried under alluvium.
The site may yield significant information about the early settlement of the
region and military use of the area.
- 18. Comments/References _____

Recorded by Ken and Marie Brown Date June 5, 1983

TOPD

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

USD 60N

Mark the boundaries of the site on the topographic section.

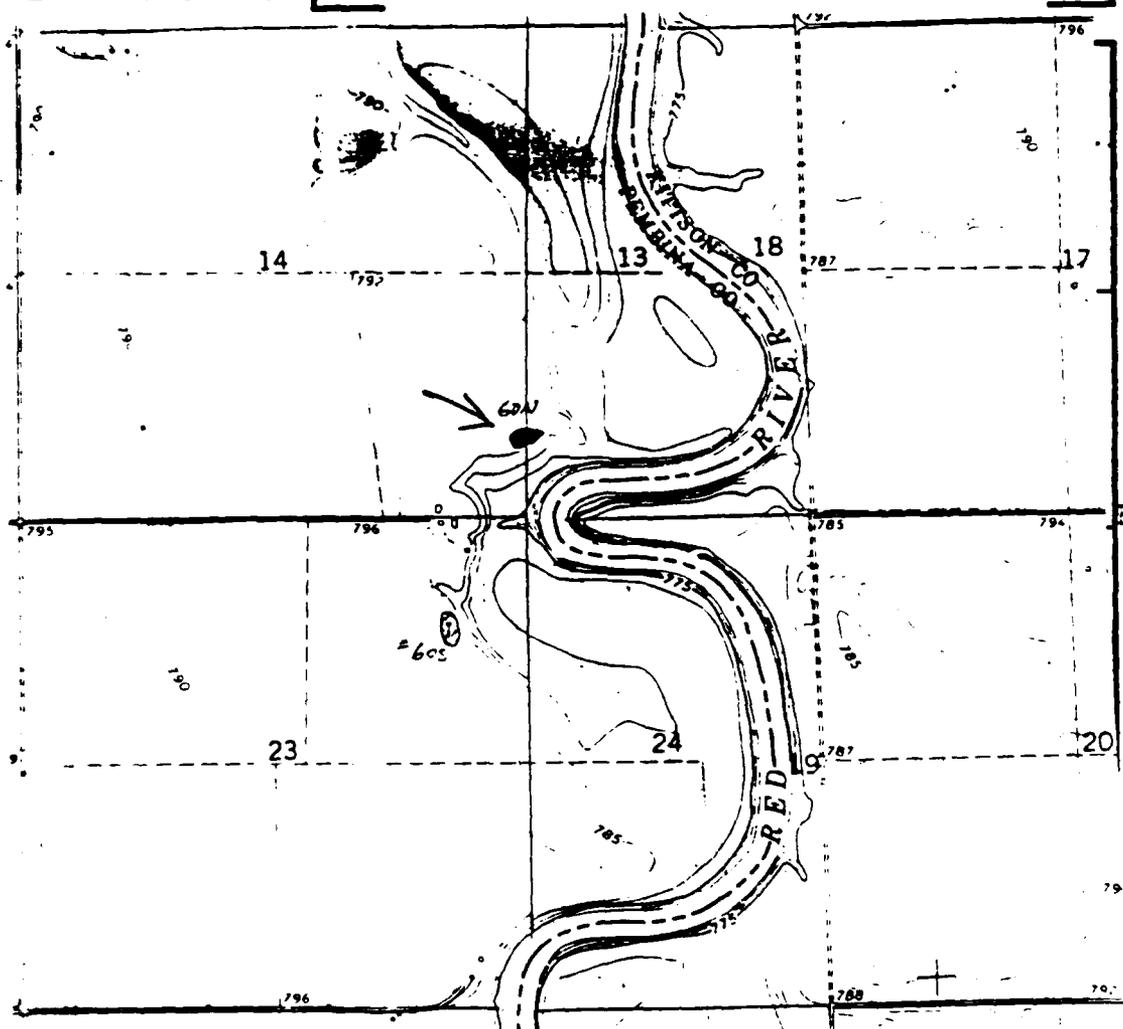


B.W. COLOR

Photo I.D. Code east

Storage Location _____

Map Key:



Map Scale:

Recorded by Ken and Marie Brown

Date June 5, 1983

I. SITE I.D.

Field Code USD-60 S SITS #
 State 32 County PB Site Number 44
 1 10 11 13 15 18
 Site Name _____ LTL Twp R Sec QQQ QQ Q
 _____ 162 5123 7 S S
 19 38 39 40 47 48 49 50
 Map Quad _____ LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a
JOLIETTE _____
 51 68 69 70 77 78 79 80

1. N^{1/2}
2. E^{1/2}
3. SW^{1/4}
4. W^{1/2}
5. NE
6. SE
7. SW^{1/4}
8. NW^{1/4}
9. C

II. SITE DESCRIPTION

SITE TYPE		CULTURAL MATERIAL		Site Area
1	<input checked="" type="checkbox"/> Conical Timber Lodge	2	<input type="checkbox"/> Bone (worked)	5 _____ <u>5000</u> <u>12</u> m ²
3	<input checked="" type="checkbox"/> CM Scatter	4	<input type="checkbox"/> Ceramics (Native)	
13	<input type="checkbox"/> Earthlodge Village	14	<input type="checkbox"/> Charcoal	
15	<input type="checkbox"/> Earthworks	16	<input type="checkbox"/> Copper (Native)	Cultural Depth
17	<input type="checkbox"/> Fortification	18	<input type="checkbox"/> Faunal Remains (skeletal)	19 <u>20</u> <u>21</u>
22	<input type="checkbox"/> Grave	23	<input type="checkbox"/> Fire Cracked Rock	
24	<input type="checkbox"/> Hearth	25	<input type="checkbox"/> Floral Remains	Depth Indicator
26	<input type="checkbox"/> Jump	27	<input type="checkbox"/> Fossil	28 <u>5</u>
29	<input type="checkbox"/> Mound	30	<input type="checkbox"/> Hide, Hair, Fur	
31	<input type="checkbox"/> Other Rock Features	32	<input type="checkbox"/> Human Remains	CULTURAL/TEMPORAL AFFILIATION
33	<input type="checkbox"/> Pit	34	<input type="checkbox"/> Projectile Point	37 <input type="checkbox"/> Paleo
35	<input type="checkbox"/> Quarry/Mine	36	<input type="checkbox"/> Shell (worked)	40 <input type="checkbox"/> Archaic
38	<input type="checkbox"/> Rock Art	39	<input checked="" type="checkbox"/> Stone, chipped	43 <input type="checkbox"/> Late Prehistoric
41	<input type="checkbox"/> Rock Shelter	42	<input type="checkbox"/> Stone, ground	46 <input type="checkbox"/> 47 Historic
44	<input type="checkbox"/> Stone Circle	45	<input type="checkbox"/> Trade Good (non-Native)	50 <input checked="" type="checkbox"/> Period Unknown
48	<input type="checkbox"/> Trail (not recent)	49	<input type="checkbox"/> Wood (worked)	
51	<input type="checkbox"/> Miscellaneous	52	<input type="checkbox"/> Other	
53	<input type="checkbox"/> Isolated Find	CM Density	Basis for Dating	
		54 <u>L</u>	55 _____	

III. ENVIRONMENT

Landform 1	Landform 2	Slope/Exposure	View, degree	View, distance
<u>L</u>	<u>15</u>	<u>10</u>	<u>3</u>	<u>2</u>
56	57 58	59 60	61	62
Elevation	Drainage System		Dist Perm Water	
<u>24.1</u> m.	<u>RED RIVER</u>		<u>450</u> m.	
63 67	1	21	22 26	
Perm Water Type	Dist Seas Water	Seas Water Type	Ecosystem	
<u>3</u>	<u>28</u> <u>32</u>	<u>33</u>	<u>34</u> <u>37</u>	
27				

IV. C.R.M.

Ownership	Site Condition	Collection	Test	Excavation
<u>3</u>	<u>5</u>	<u>3</u>	<u>0</u>	<u>—</u>
38	39	40	41	42
Fieldwork Date	Management Recommendation			
<u>5.14.83</u>	<u>4</u>			
43 48	49			
Additional Information				

40				

OFFICE USE ONLY

Soil Association	Ecozone	Area Signf	CR Type	Verified Site	Non-Site
_____	_____	_____	_____	_____	_____
41 43	44 45	46	47	48	49
State Register	National Register	E C F	T F	MS Number	
_____	_____	_____	_____	_____	
50	51	52	53	54	62

Date Coded _____

1. Access Exit off of Interstate 29 at the McArthur exit, go south of
McArthur 2 miles, turn east onto gravel rd. go east 2 miles to end of road
Site is at south end of dike around farmstead.

2. Description of Site The site is on a prominent terrace of the Red River.
The site is presently in cultivation and has been disturbed by construction
of a dike around a farmstead. The owners report finding arrow-heads in their
yard several years ago.

3. Description of Cultural Materials (Quantify and identify) _____
7 flakes; 2 shatter; 1 endscraper; 1 biface fragment.

11 # of items of cultural material observed 11 # Collected

4. Artifact Repository University of South Dakota Archaeology Laboratory.

5. Description of Subsurface Testing Shovel testing Nothing collected from shovel
tests.

6. Current Use of Site crops, dike, yard

7. Owner's Name/Address Sam Kotchman,

8. Vegetation none, plowed, grass, trees.

9. Cover (% of visible ground) 0-100%

10. Man-hours spent on site 4

11. Project Title Red River Farmstead Survey

P.I. Kenneth L. Brown

12. Report Title Red River Farmstead Survey

Author Ken and Marie Brown

13. Other Published References none

14. Description of Collections Observed _____

15. Owner-Address of Collections Observed _____

16. Statement of Integrity _____

17. Statement of Significance The site, what remains of it, may potentially have buried cultural remains below plowzone. A large portion of the site has probably been destroyed by construction of a dike and house. However, a portion of the site remains and should be further investigated.

18. Comments/References _____

Recorded by Ken and Marie Brown Date June 5, 1983

TOPO

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

Mark the boundaries of the site on the topographic section.

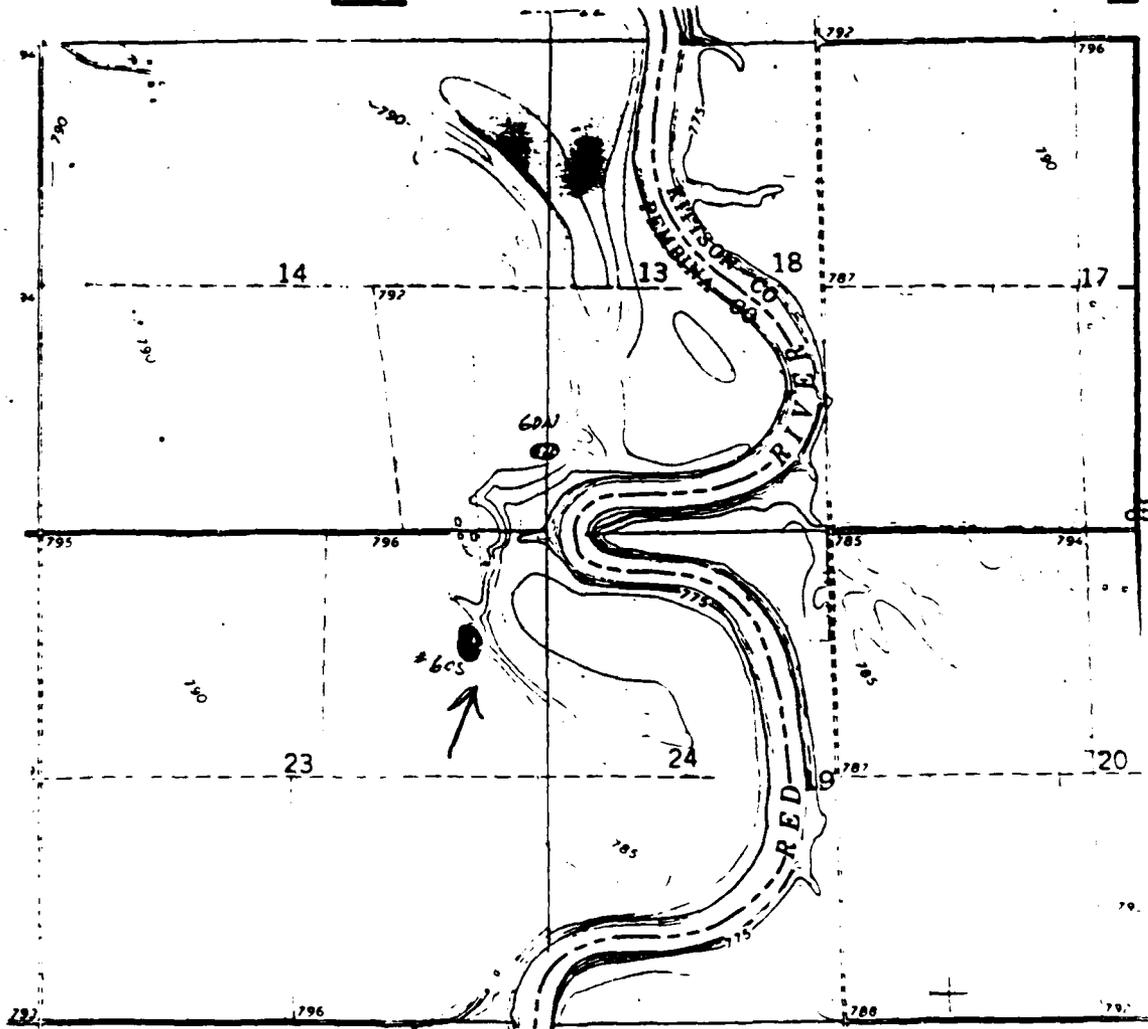


B.W. Color

Photo I.D. Code East

Storage Location _____

Map Key:



Map Scale:

Recorded by Ken and Marie Brown

Date June 5, 1983

Warner

I. SITE I.D.

Field Code USD-35 State 32 County PB Site Number 5
 1 _____ 10 _____ 11 _____ 13 _____ 15 _____ 18 _____
 Site Name FORT PEMBINA LTL Twp R Sec QQQ QO Q
 19 _____ 38 _____ 39 40 47 48 49 50
 Map Quad PEMBINA LTL^a Twp R Sec QQQ^a QO^a Q^a
 51 _____ 68 _____ 69 70 77 78 79 80

1. N₂
2. E₂
3. S₁
4. NE₂
5. SE₂
6. S₁
7. S₁
8. NW₂
- 9.

II. SITE DESCRIPTION

Theme 1	Site Type	Cultural Material	Site Area
1 <u>16</u> 2	3 <u>1</u> CM Scatter	4 <u>—</u> Bone (worked)	5 <u>75000</u> 12 m ²
	13 <u>—</u> Chimney	14 <u>—</u> Ceramics (Euro Am)	Cultural Depth
Theme 2	15 <u>—</u> Depression	16 <u>—</u> Charcoal	21 <u>20</u> 23
17 <u>—</u> 18	19 <u>—</u> Dump	20 <u>—</u> Cloth	Depth Indicator
	24 <u>—</u> Earthworks	25 <u>—</u> Faunal Remains	30 <u>5</u>
	26 <u>—</u> Fortification	27 <u>—</u> Fire Cracked Rock	Occupation Date
	28 <u>—</u> Foundation	29 <u>—</u> Floral Remains	Begin _____ End _____
	31 <u>—</u> Grave	32 <u>—</u> Glass	39 <u>1870</u> 42 43 <u>1895</u> 46
	33 <u>—</u> Hearth	34 <u>—</u> Hide, Hair, Fur	Basis for Dating
	35 <u>—</u> Machinery	36 <u>—</u> Human Remains	53 <u>10</u> 54
	37 <u>—</u> Quarry/Mine	38 <u>1</u> Masonry	CM Density Isolated Find
	47 <u>—</u> Rock Art	48 <u>1</u> Metal	59 <u>1</u> 60 <u>—</u>
	49 <u>—</u> Trail	50 <u>—</u> Plastic	
	51 <u>—</u> Wreck (ship)	52 <u>—</u> Rubber	
	55 <u>—</u> Other	56 <u>—</u> Shell (worked)	
		57 <u>—</u> Wood (worked)	
		58 <u>—</u> Other	

III. ENVIRONMENT

Landform 1	Landform 2	Slope/Exposure	View, degree	View, distance
1 <u>1</u>	<u>15</u>	<u>10</u>	<u>3</u>	<u>2</u>
61 _____	62 63 _____	64 65 _____	66 _____	67 _____
Elevation	Drainage System		Dist Perm Water	
<u>241</u> m.	<u>PEMBINA RIVER</u>		<u>100</u> m.	
68 _____	72 _____	21 _____	22 _____	26 _____
Perm Water Type	Dist Seas Water	Seas Water Type	Ecosystem	
<u>3</u>	_____	_____	_____	
27 _____	28 _____ 32 _____	33 _____	34 _____ 37 _____	

IV. C.R.M.

Ownership	Site Condition	Collection	Test	Excavation
<u>3</u>	<u>4</u>	<u>1</u>	<u>0</u>	<u>—</u>
38 _____	39 _____	40 _____	41 _____	42 _____
Fieldwork Date	Management Recommendation			
<u>5/3/83</u>	_____			
43 _____	48 _____	49 _____		
Additional Information				
1 _____ 40 _____				

OFFICE USE ONLY

Soil Association	Ecozone	Area Signf	CR Type	Verified Site	Non-Site
_____	_____	_____	_____	_____	_____
41 43 _____	44 45 _____	46 _____	47 _____	48 _____	49 _____
State Registry	National Register	E C F T F	MS Number		
_____	_____	_____	_____		
50 _____	51 _____	52 _____	53 _____	54 _____	60 _____

Coder _____ Date Coded _____

6. Current Use of Site farm house, barns, crops.
7. Owner's Name/Address Alvin and Violet Warner, Pembina
8. Vegetation grass, trees, buildings.
9. Cover (% of visible ground) 0-100%
10. Man-hours spent on site 2
11. Project Title Red River Farmstead Survey
P. I. Kenneth L. Brown
12. Report Title Red River Farmstead Survey
Author Ken and Marie Brown
13. Other Published References _____
14. Description of Collections Observed bullets,
15. Owner-Address of Collections Observed Warners, Pembina, N.D.
16. Statement of Integrity _____
17. Statement of Significance This is an early U.S. military fort used in the late 19th century. It was used to protect the early settlers in the region. It played an important role in the Euro-American settlement of the northeastern part of North Dakota and northwestern Minnesota.
18. Comments/References _____
- Recorded by Kenneth and Marie Brown Date June 5, 1983

5

TOPO

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

Mark the boundaries of the site on the topographic section.



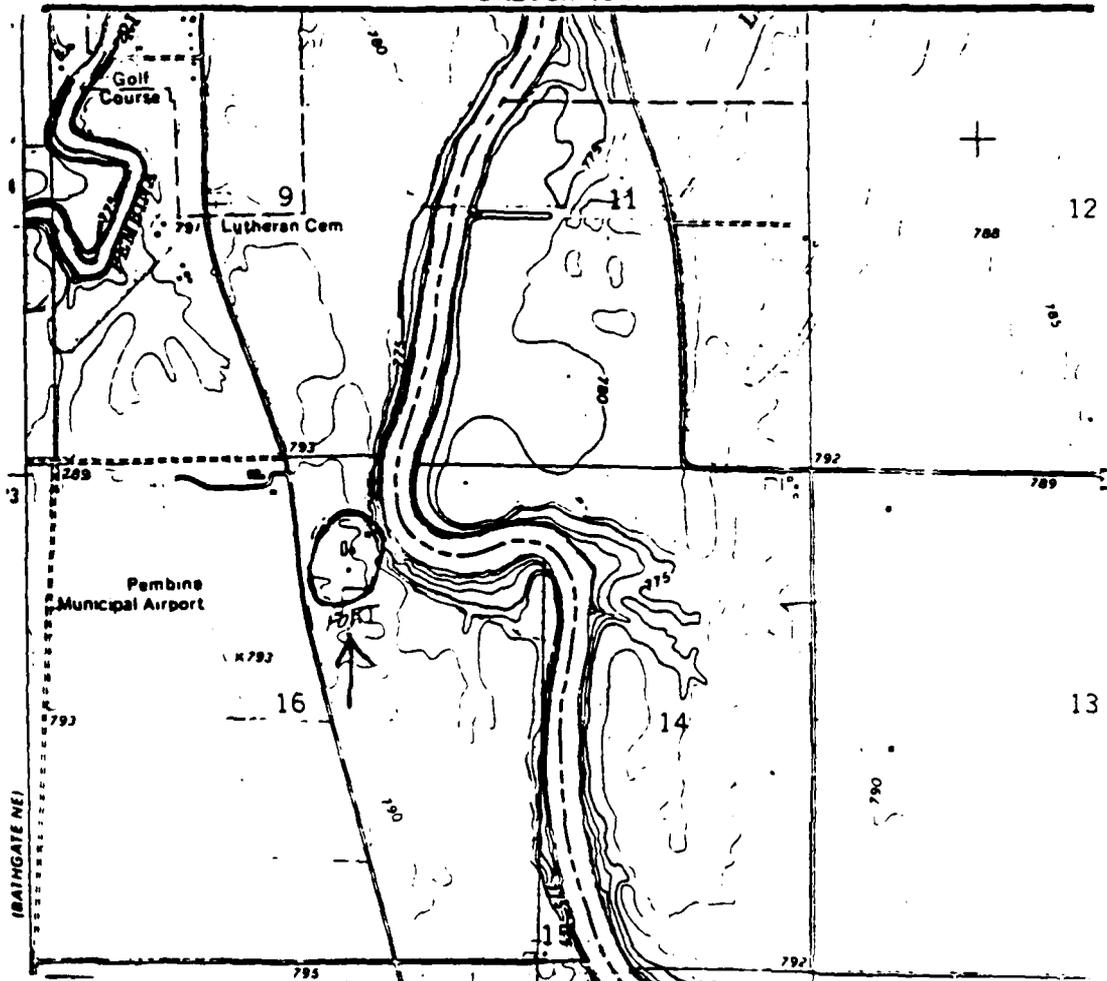
B.W. Color

Photo I.D. Code east

Storage Location _____

SKETCH MAP

Map Key:



Map Scale:

Recorded by Kenneth and Marie Brown

Date June 5, 1983

1. N 1/2
2. E 1/2
3. S 1/2
4. W 1/2
5. NE 1/4
6. SE 1/4
7. SW 1/4
8. NW 1/4
9. C

I. SITE I.D.

Field Code USD-43 LOG SITS #
 State 32 County PB Site Number 46
 11 13 15 18
 Site Name _____ LTL Twp R Sec QQQ QQ Q
 _____ 163 51 35 2 2 2
 19 _____ 38 39 40 _____ 47 48 49 50
 Map Quad _____ LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a
FERRISIA _____ 68 69 70 _____ 77 78 79 80

II. SITE DESCRIPTION

City _____ Site Area 1000 m²
 _____ 15 16 _____ 23
 Street # _____ Steet Name _____
 _____ 24 _____ 29 _____ 30 _____ 49
 Feature # _____ # of Features _____ Theme 1 _____ Theme 2 _____
 _____ 50 51 _____ 52 53 _____ 54 55 _____ 56 57
 Orig Use 1 LOG _____ Orig Use 2 _____ Pres Use 1 _____ Pres Use 2 _____
 _____ 58 60 _____ 61 63 _____ 64 66 _____ 67 69
 Year Constructed _____ Dating Technique _____ Ethnic _____ Style _____
 _____ 70 _____ 73 _____ 74 _____ 75 76 _____ 77 78
 Structural Comp _____ Exterior Finish 1 _____ Exterior Finish 2 _____
 _____ 79 80 _____ 1 2 _____ 3 4
 Architect/Builder _____
 _____ 5 _____ 37

IV. C.R.M.

Ownership _____ Site Condition 6 Collection 1 Test 0 Excavation _____
 _____ 38 _____ 39 _____ 40 _____ 41 _____ 42
 Fieldwork Date _____ Management Recommendation _____
 _____ 43 _____ 48 _____ 44 _____ 49
 Additional Information LOG HOUSE
 _____ 1 _____ 40

OFFICE USE ONLY

OFFICE USE ONLY
 Soil Association _____ Ecozone _____ Area Signf _____ CR Type _____ Verified Site _____ Non-Site _____
 _____ 41 43 _____ 44 45 _____ 46 _____ 47 _____ 48 _____ 49
 State Registry _____ National Register _____ E C F T F MS Number _____
 _____ 50 _____ 51 _____ 52 _____ 53 _____ 54 _____ 60

Code USD-48108

1. Access Go 5 miles south of Pembina on paved county road, which passes by the airport. Turn east onto gravel road, go east 1 mile. Log house is on north edge of a terrace of the Red River.

2. Description of Site Site is a standing, two-story, A-frame log house. Logs are squared and dove-tailed at the corners. Front porch and east room added later. Brick chimney is on the north end of the log house. Two up-stair bedrooms, one large downstairs room. No indoor bathroom. No foundation. House is in good shape considering its age, etc.

3. List Feature(s) by Type & Number log house-1

4. Location Integrity: Original Site xx Moved (Note Dates) _____

5. Plan Shape: Apse & Narthex _____ Apse & Transept _____ Apse _____
 Circular _____ Cruciform _____ H-Shaped _____ Irregular _____ L-Shaped _____
 Narthex & Transept _____ Polygonal _____ Rectangular Square _____
 T-Shaped _____ U-Shaped _____ Other _____

6. Number of Stories 2

7. Roof Shape: Dome _____ False Front _____ Flat _____ Gable Gable, Bellcast _____
 Gable, Center _____ Gable, Cross _____ Gable, Hipped _____
 Gable, Offset _____ Gambrel _____ Hip _____ Hip, Bellcast _____ Hip, Gabled _____
 Hip, Truncated _____ Mansard _____ Mansard, Bellcast _____
 Pyramidal _____ Quonset _____ Saltbox _____ Sawtooth _____ Shed _____
 Valuted/Arched _____ Other _____

8. Roof Material: Unknown _____ Asbestos Shingles _____ Asphalt, Roll Roofing _____
 Asphalt, Shingles _____ Clay Tile _____ Earth/Clay _____
 Metal _____ Tarpaper _____ Wood Shingles Other _____

9. Basement: Yes _____ No Partial _____ Unknown _____

10. Basement or Foundation Material: Unknown _____ Brick _____ Clay Tile _____
 Concrete, Block _____ Concrete, Poured/Precast _____ Concrete, Simulated Stone Block _____
 Earthen Brick/Adobe _____ Log Stone, Cut _____
 Rammed Earth/Puddled Clay _____ Sod _____ Steel Frame _____
 Stone, Random _____ Stone, Slab 233- Wood _____ Other _____

- 11. Describe Alterations (Note Dates) Front porch with lap siding, windows. East room (lean-to addition), lap siding (wooden horizontal siding, wooden shingles.
- 12. Samples Collected none
- 13. Location of Samples _____
- 14. Owner's Name, Address, & Phone # Richard Oakes and his cousin, Pembina, N.D.
- 15. Previous Owners (Note Dates) _____
- 16. Map Sources Checked (Note Dates): Plat Map _____ County Atlas _____ Topographi
Map xxxx Sanborn Map _____ Other Insurance Map _____ Other _____
- 17. Other Historical Information _____
- 18. Project Title Red River Farmstead Survey Project Supervisor(s) Kenneth Brown
- 19. Report Title Red River Farmstead Survey Author(s) Ken and Marie Brown
- 20. Statement of Integrity The log house is in pretty good condition. The first level of logs are slightly rotten, but all other logs are solid. The roof is beginning to leak and leakage will more rapidly destroy the house through deterioration. The front porch and east room additions are in poor condition.
- 21. Statement of Significance This is one of the last remainin: log houses constructed by the first homesteaders in northeastern North Dakota. Most other log structures have recently been destroyed or dismantled and the wood used for other purposes.
- 22. Comments/References It is recommended that some effort should be made to preserve this rather nicely constructed log house.

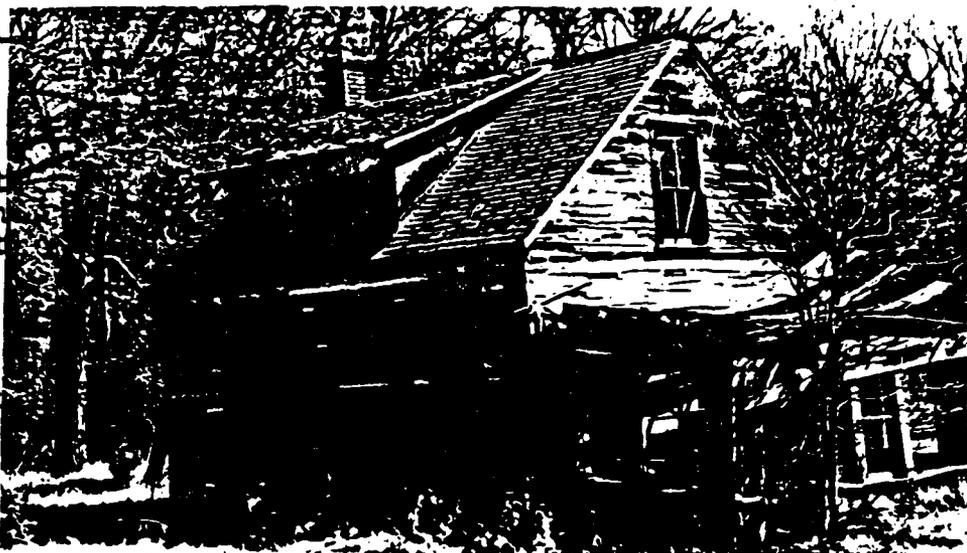
Recorded by Ken and Marie Brown Date June 5, 1983

46

TOPO

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

Mark the boundaries of site on the topographic section.

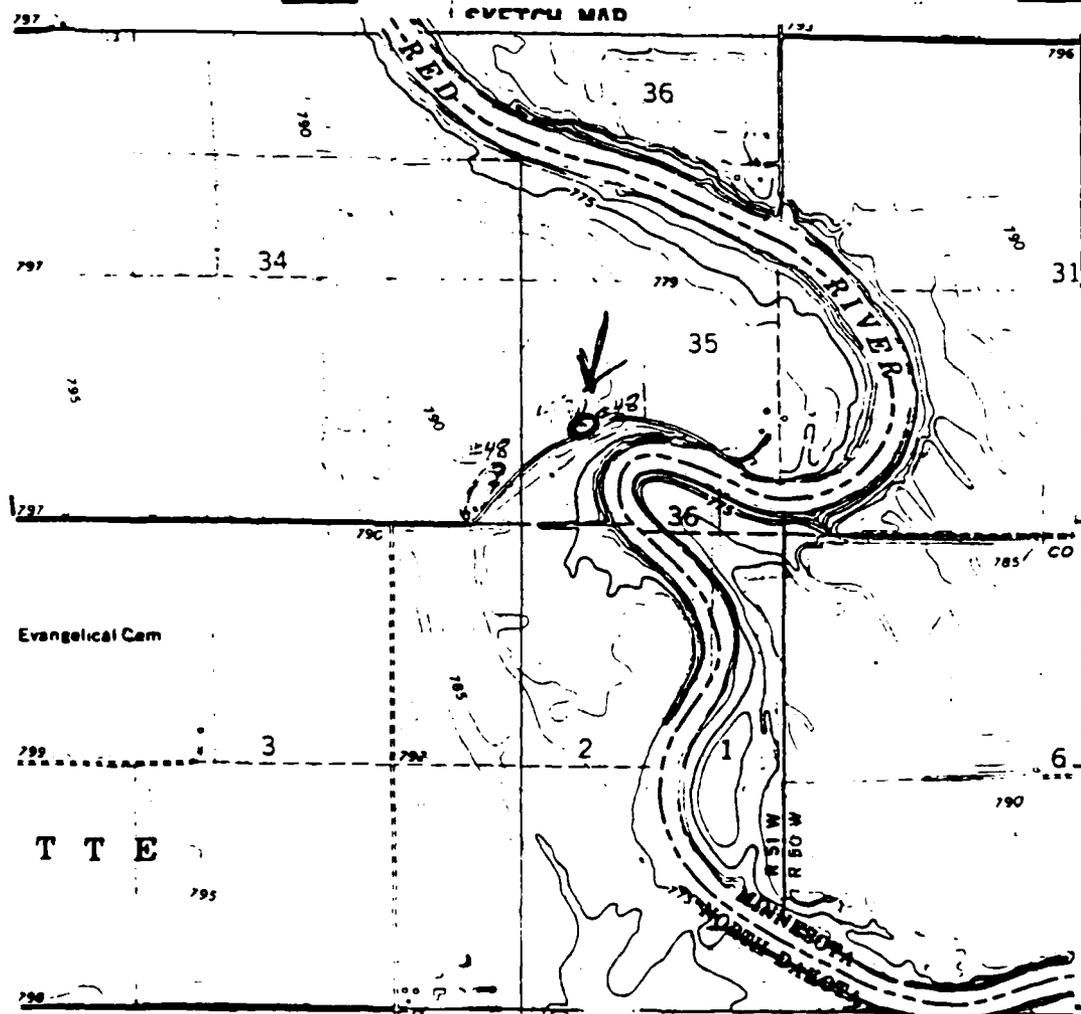


B.W. Color

Photo I.D. Code North East

Storage Location _____

Map Key:



Map Scale:



Recorded by Kenneth and Marie Brown

Date June 5, 1983

101000
born, 3 months

NDCRS SITE FORM
ARCHEOLOGICAL SITES

I. SITE I.D.

Field Code USA-33 State 32 County PA Site Number 47
 1 _____ 10 _____ 11 _____ 13 _____ 15 _____ 18 _____
 Site Name _____ LTL Twp R Sec QQQ QQ Q
 19 _____ 38 _____ 39 40 _____ 47 _____ 48 49 50
 Map Quad BATHGATE, N.E. LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a
 51 _____ 68 _____ 69 70 _____ 77 _____ 78 _____ 79 80

1. N₁
2. E₁
3. S₁
4. S₂
5. N₁
6. S₁
7. SW_{1/4}
8. N_{1/2}
- 9.

II. SITE DESCRIPTION

1	Conical Timber Lodge	2	Bone (worked)	Site Area	5	<u>25,000</u> 12 m ²	
3	<input checked="" type="checkbox"/> CM Scatter	4	<input checked="" type="checkbox"/> Ceramics (Native)	Cultural Depth	19	<u>20</u> 21	
13	Earthlodge Village	14	Charcoal	Depth Indicator	28	<u>5</u>	
15	Earthworks	16	Copper (Native)	CULTURAL/TEMPORAL AFFILIATION	37	<input type="checkbox"/> Paleo	
17	Fortification	18	<input checked="" type="checkbox"/> Faunal Remains (skeletal)	40	<input type="checkbox"/> Archaic		
22	Grave	23	Fire Cracked Rock	43	<input checked="" type="checkbox"/> Late Prehistoric		
24	Hearth	25	Floral Remains	46	<u>10</u> 47 Historic		
26	Jump	27	Fossil	50	<input type="checkbox"/> Period Unknown		
29	Mound	30	Hide, Hair, Fur				
31	Other Rock Features	32	Human Remains				
33	Pit	34	Projectile Point				
35	Quarry/Mine	36	Shell (worked)				
38	Rock Art	39	<input checked="" type="checkbox"/> Stone, chipped				
41	Rock Shelter	42	Stone, ground				
44	Stone Circle	45	Trade Good (non-Native)				
48	Trail (not recent)	49	Wood (worked)				
51	Miscellaneous	52	Other				
53	<input type="checkbox"/> Isolated Find	CM Density	54	<u>3</u>	Basis for Dating	55	<u>3</u>

III. ENVIRONMENT

Landform 1 1 Landform 2 8 Slope/Exposure 10 View, degree 3 View, distance 2
 56 _____ 57 58 _____ 59 60 _____ 61 _____ 62 _____
 Elevation 241 m. Drainage System PEMBINA RIVER Dist Perm Water 300 m.
 63 _____ 67 _____ 1 _____ 21 _____ 22 _____ 26 _____
 Perm Water Type 3 Dist Seas Water _____ Seas Water Type _____ Ecosystem _____
 27 _____ 28 _____ 32 _____ 33 _____ 34 _____ 37 _____

IV. C.R.M.

Ownership 3 Site Condition 5 Collection 3 Test 0 Excavation _____
 38 _____ 39 _____ 40 _____ 41 _____ 42 _____
 Fieldwork Date 5/3/83 Management Recommendation _____
 43 _____ 48 _____ 4 _____ 49 _____
 Additional Information _____
 1 _____ 40 _____

OFFICE USE ONLY

Soil Association _____ Ecozone _____ Area Signf _____ CR Type _____ Verified Site _____ Non-Site _____
 41 43 _____ 44 45 _____ 46 _____ 47 _____ 48 _____ 49 _____
 State Register _____ National Register _____ E C F T F MS Number _____
 50 _____ 51 _____ 52 _____ 53 _____ 54 _____ 61 _____

Coder _____

Date Coded _____

SITS #

Field Code USD-33 State 32 County PB Site Number 47

10 11 13 15 18

Site Name _____ LTL Twp R Sec QQQ QQ Q

19 _____ 38 163 5 118 2 2 5

39 40 _____ 47 48 49 50

Map Quad BATHGATE NE LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a

51 _____ 68 _____ 69 70 _____ 77 78 79 80

1. N½
2. E½
3. S½
4. W½
5. NE¼
6. SE¼
7. SW¼
8. NW¼
9. C

I. SITE DESCRIPTION

Theme 1	Site Type	Cultural Material	Site Area
1 <u>1</u> 2 _____	3 <u>1</u> CM Scatter	4 <u>1</u> Bone (worked)	5 <u>25000</u> 12 m ²
	13 _____ Chimney	14 <u>1</u> Ceramics (Euro Am)	Cultural Depth
Theme 2	15 _____ Depression	16 _____ Charcoal	21 <u>20</u> 23
17 _____ 18 _____	19 _____ Dump	20 _____ Cloth	Depth Indicator
	24 _____ Earthworks	25 _____ Faunal Remains	30 <u>5</u>
	26 _____ Fortification	27 _____ Fire Cracked Rock	Occupation Date
	28 _____ Foundation	29 _____ Floral Remains	Begin _____ End _____
	31 _____ Grave	32 <u>1</u> Glass	39 <u>1880</u> 42 43 _____ 46
	33 _____ Hearth	34 _____ Hide, Hair, Fur	Basis for Dating
	35 _____ Machinery	36 _____ Human Remains	53 <u>3</u> 54
	37 _____ Quarry/Mine	38 _____ Masonry	CM Density Isolated Find
	47 _____ Rock Art	48 _____ Metal	59 <u>3</u> 60 _____
	49 _____ Trail	50 _____ Plastic	
	51 _____ Wreck (ship)	52 _____ Rubber	
	55 _____ Other	56 _____ Shell (worked)	
		57 _____ Wood (worked)	
		58 _____ Other	

II. SITE DESCRIPTION

Landform 1	Landform 2	Slope/Exposure	View, degree	View, distance
<u>1</u>	<u>8</u>	<u>10</u>	<u>3</u>	<u>3</u>
61 Elevation	62 63 Drainage System	64 65	66	67 Dist Perm Water
<u>24.1</u> m.	<u>PENBINA RIVER</u>			<u>300</u> m.
68 Perm Water Type	72 1 Dist Seas Water	21 Seas Water Type	22	26 Ecosystem
<u>3</u>	_____	_____	_____	_____
27	28 32	33	34	37

III. ENVIRONMENT

Ownership	Site Condition	Collection	Test	Excavation
<u>3</u>	<u>5</u>	<u>3</u>	<u>0</u>	_____
38	39	40	41	42
Fieldwork Date	Management Recommendation			
<u>5.13.83</u>	<u>4</u>			
43 48	49			
Additional Information				

1 _____ 40				

IV. C.R.M.

OFFICE USE ONLY

Soil Association	Ecozone	Area Signf	CR Type	Verified Site	Non-Site
_____	_____	_____	_____	_____	_____
41 43	44 45	46	47	48	49
State Registry	National Register	E C F	T F	MS Number	
_____	_____	_____	_____	_____	_____
50	51	52	53	54	60

OFFICE USE ONLY

Coder _____

Date Coded _____

1. Access Take Pembina Airport Interchange exit from Interstate 29, go west on gravel rd. 1/2 mile, turn north, go north 3/4 mile. Site is 1/2 mile west of road near oxbow of Tongue River.

2. Description of Site Site is on the outside bend of an oxbow of the Tongue River. The site potentially contains buried prehistoric remains below plowzone, while the historic component is probably all within the plowzone.

3. Description of Cultural Materials (Quantify and identify)

1 bifacially flaked knife; 4 flakes; 2 shatter; 2 pottery rimsherds and 19 body sherds; The pottery is grit tempered, smooth and cordmarked (Woodland); 2 tableware frags.; 1 bottle stopper; 6 bottle glass frags. (4 necks); 1 blue bead; Rosary frag. (section of five beads); 1 piece of melted lead frag. Bison or Bos: 1- 3rd maxillary molar; 2 - 1st or 2nd mandibular molars; 1- 3rd mandibular molar; Bison bison: 1 scapula frag.; 1 astragalus; 2- 1st phalanges; 1 Vulpes vulpes mandible; 1 unidentified carpal- large mammal.

over 200 # of items of cultural material observed 50 # Collected

4. Artifact Repository University of South Dakota Archaeology Laboratory.

5. Description of Subsurface Testing Shovel testing.

6. Current Use of Site crops

7. Owner's Name/Address Holmquist

8. Vegetation none, plowed

9. Cover (% of visible ground) 100%

10. Man-hours spent on site 6

11. Project Title Red River Farmstead Survey

P.I. Kenneth L. Brown

12. Report Title Red River Farmstead Survey

Author ken and Marie Brown

13. Other Published References none

14. Description of Collections Observed _____

15. Owner-Address of Collections Observed _____

16. Statement of Integrity _____

17. Statement of Significance The historic component is probably not significant since only a barn and metal graineries are present. No standing house is present. The prehistoric component may potentially yield significant information about the prehistoric use of the region.

18. Comments/References _____

Recorded by Ken and Marie Brown Date June 5, 1983

47

TOPO

Attach the portion of the
7.5' U.S.G.S. topographic
quadrangle that shows the
location of the site.

Mark the boundaries of
site on the topographic
section.



B.W. Color

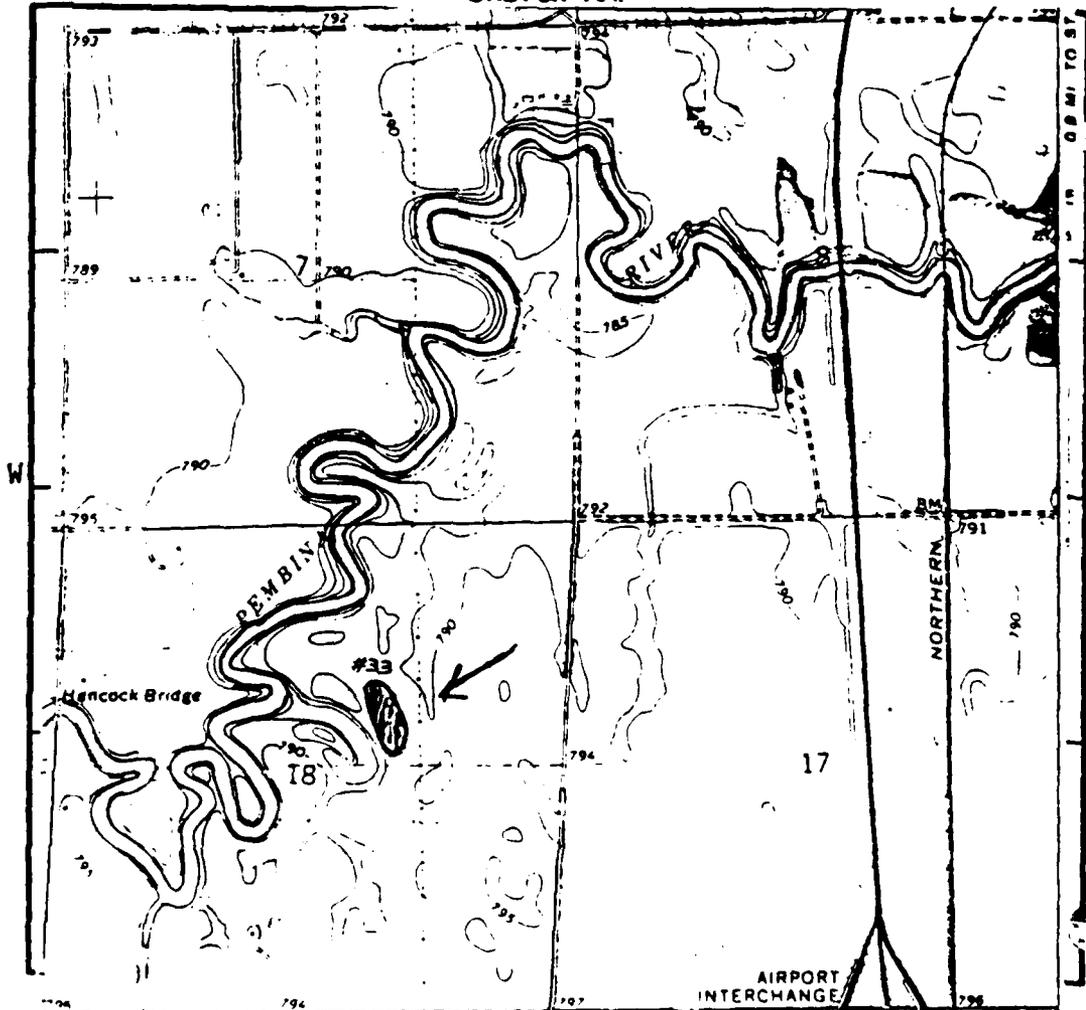
Photo I.D. Code

West

Storage Location

SKETCH MAP

Map Key:



Map Scale:

Recorded by Ken and Malle Blouin

Date June 5, 1983

above Meador
abandoned house

ADDS SITE FORM
ARCHEOLOGICAL SITES

I. SITE I.D.#

Field Code USD-24 SITS #
 State 32 County PB Site Number 78
 11 13 15 18
 Site Name _____ LTL Twp R Sec QQQ QQ Q
 19 _____ 38 163 5213 2 6 2
 39 40 _____ 47 48 49 50
 Map Quad BATHGATE NE LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a
 51 _____ 68 69 70 _____ 77 78 79 80

1. N1/2
2. E1/2
3. S1/2
4. W1/2
5. NE1/4
6. SE1/4
7. SW1/4
8. NW1/4
9. C

II. SITE DESCRIPTION

1	Conical Timber Lodge	2	Bone (worked)	5	Site Area
3	CM Scatter	4	Ceramics (Native)		<u>11250.12 m²</u>
13	Earthlodge Village	14	Charcoal		
15	Earthworks	16	Copper (Native)		Cultural Depth
17	Fortification	18	Faunal Remains (skeletal)	19	<u>20</u> 21
22	Grave	23	Fire Cracked Rock		
24	Hearth	25	Floral Remains		Depth Indicator
26	Jump	27	Fossil	28	<u>5</u>
29	Mound	30	Hide, Hair, Fur		
31	Other Rock Features	32	Human Remains		CULTURAL/TEMPORAL AFFILIATION
33	Pit	34	Projectile Point		
35	Quarry/Mine	36	Shell (worked)	37	<u> </u> Paleo
38	Rock Art	39	Stone, chipped	40	<u> </u> Archaic
41	Rock Shelter	42	Stone, ground	43	<u> </u> Late Prehistoric
44	Stone Circle	45	Trade Good (non-Native)	46	<u> </u> <u>1047</u> Historic
48	Trail (not recent)	49	Wood (worked)	50	<u> </u> <u> </u> Period Unknown
51	Miscellaneous	52	Other		

53 Isolated Find CM Density 54 Basis for Dating 55

III. ENVIRONMENT

Landform 1 Landform 2 Slope/Exposure View, degree View, distance
 56 57 58 59 60 61 62
 Elevation 244 m. Drainage System PEMBINA RIVER Dist Perm Water 150 m.
 63 67 1 21 22 26
 Perm Water Type Dist Seas Water Seas Water Type Ecosystem
 27 28 32 33 34 37

IV. C.R.M.

Ownership Site Condition Collection Test Excavation
 38 39 40 41 42
 Fieldwork Date 5.13.83 Management Recommendation
 43 48 49

OFFICE USE ONLY

OFFICE USE ONLY
 Soil Association _____ Ecozone _____ Area Signf _____ CR Type _____ Verified Site _____ Non-Site _____
 41 43 44 45 46 47 48 49
 State Register _____ National Register _____ E C F T F MS Number _____
 50 51 52 53 54 62

NDCRS SITE FORM
 ARCHEOLOGICAL-HISTORICAL SITES

I. SITE I.D.

Field Code <u>USD-24</u>	SITS # State <u>32</u> County <u>PB</u> Site Number <u>48</u>
1 _____ 10	11 _____ 13 _____ 15 _____ 18
Site Name _____	LTL Twp R Sec QQQ QQ Q <u>163</u> <u>5213</u> <u>2</u> <u>6</u> <u>2</u>
19 _____ 38	39 40 _____ 47 48 49 50
Map Quad <u>BATHGATE NE</u>	LTL _a Twp _a R _a Sec _a QQQ _a QQ _a Q _a
51 _____ 68	69 70 _____ 77 78 79 80

1. NW₄
2. E₂
3. _____
4. W₂
5. NE₄
6. SE₄
7. SW₄
8. NW₄
9. C

II. SITE DESCRIPTION

Theme 1 1 <u>1</u> 2	Site Type 3 <u>1</u> CM Scatter	Cultural Material 4 <u>1</u> Bone (worked)	Site Area 5 <u>11250</u> 12 m ²
Theme 2 17 _____ 18	13 _____ Chimney	14 <u>1</u> Ceramics (Euro Am)	Cultural Depth 21 <u>20</u> 23
	15 _____ Depression	16 _____ Charcoal	Depth Indicator 30 <u>5</u>
	19 _____ Dump	20 _____ Cloth	Occupation Date Begin _____ End _____
	24 _____ Earthworks	25 <u>1</u> Faunal Remains	39 <u>1880</u> 42 43 <u>1900</u> 46
	26 _____ Fortification	27 _____ Fire Cracked Rock	Basis for Dating 53 <u>3</u> 54
	28 _____ Foundation	29 _____ Floral Remains	CM Density Isolated Find 59 <u>2</u> 60 _____
	31 _____ Grave	32 <u>1</u> Glass	
	33 _____ Hearth	34 _____ Hide, Hair, Fur	
	35 _____ Machinery	36 _____ Human Remains	
	37 _____ Quarry/Mine	38 _____ Masonry	
	47 _____ Rock Art	48 _____ Metal	
	49 _____ Trail	50 <u>1</u> Plastic	
	51 _____ Wreck (ship)	52 _____ Rubber	
	55 _____ Other	56 _____ Shell (worked)	
		57 _____ Wood (worked)	
		58 _____ Other	

III. ENVIRONMENT

Landform 1 <u>4</u>	Landform 2 <u>8</u>	Slope/Exposure <u>10</u>	View, degree <u>2</u>	View, distance <u>3</u>
61 Elevation <u>244</u> m.	62 63 Drainage System <u>PEMBINA RIVER</u>	64 65 _____	66 _____	67 Dist Perm Water <u>150</u> m.
68 Perm Water Type <u>3</u>	72 Dist Seas Water _____	21 Seas Water Type <u>33</u>	22 _____	26 Ecosystem _____
27 _____	28 32 _____	33 _____	34 _____	37 _____

IV. C.R.M.

Ownership <u>3</u>	Site Condition <u>5</u>	Collection <u>3</u>	Test <u>0</u>	Excavation <u>42</u>
38 _____	39 _____	40 _____	41 _____	42 _____
Fieldwork Date <u>5/3/83</u>	43 _____	48 _____	Management Recommendation <u>4</u>	49 _____
43 _____	48 _____	49 _____		

OFFICE USE ONLY

Additional Information 1 _____ 40					
Soil Association 41 43 _____	Ecozone 44 45 _____	Area Signf 46 _____	CR Type 47 _____	Verified Site 48 _____	Non-Site 49 _____
State Registry 50 _____	National Register 51 _____	Register 52 _____	E C F T F 53 _____	MS Number 54 _____	60 _____

Coder _____

Date Coded _____

1. Access Take Pembina Airport Interchange exit off of Interstate 29, go west on gravel road 2 miles. Site is south of standing, abandoned, two story house.

2. Description of Site Site is on a terrace of the Pembina River. The historic component is located east of the driveway in a cultivated field. The prehistoric component is located on the west side of the driveway in a cultivated field. Both components probably extend into the grassed yard.

3. Description of Cultural Materials (Quantify and identify) 1 prehistoric flake.(chert); 4 crockery frags.; 2 kitchenware; 4 tableware frags.; 1 decorative ware frag.; 1 door knob frag.; 8 bottle necks, 2 bases and 1 glass stopper; 1 metal button; 1 lower canine, Canis sp.

over 50 # of items of cultural material observed 26 # Collected

4. Artifact Repository University of South Dakota Archeology Laboratory.

5. Description of Subsurface Testing Shovel testing. Nothing recovered.

6. Current Use of Site crops, abandoned farm house
7. Owner's Name/Address Steve Meagher
8. Vegetation none, plowed; grass, trees (yard)
9. Cover (% of visible ground) 0-100%
10. Man-hours spent on site 4
11. Project Title Red River Farmstead Survey
P.I. Kenneth L. Brown
12. Report Title Red River Farmstead Survey
Author Ken and Marie Brown
13. Other Published References none
14. Description of Collections Observed _____

15. Owner-Address of Collections Observed _____
16. Statement of Integrity _____

17. Statement of Significance The historic component is probably contained within the plowzone. The prehistoric component by be more deeply buried. Only one flake was recovered. The site potentially contains buried cultural remains which may yield information about the prehistoric use of the region.

18. Comments/References _____

Recorded by Ken and Marie BrownDate June 5, 1983

TOPO

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

Mark the boundaries of the site on the topographic section.



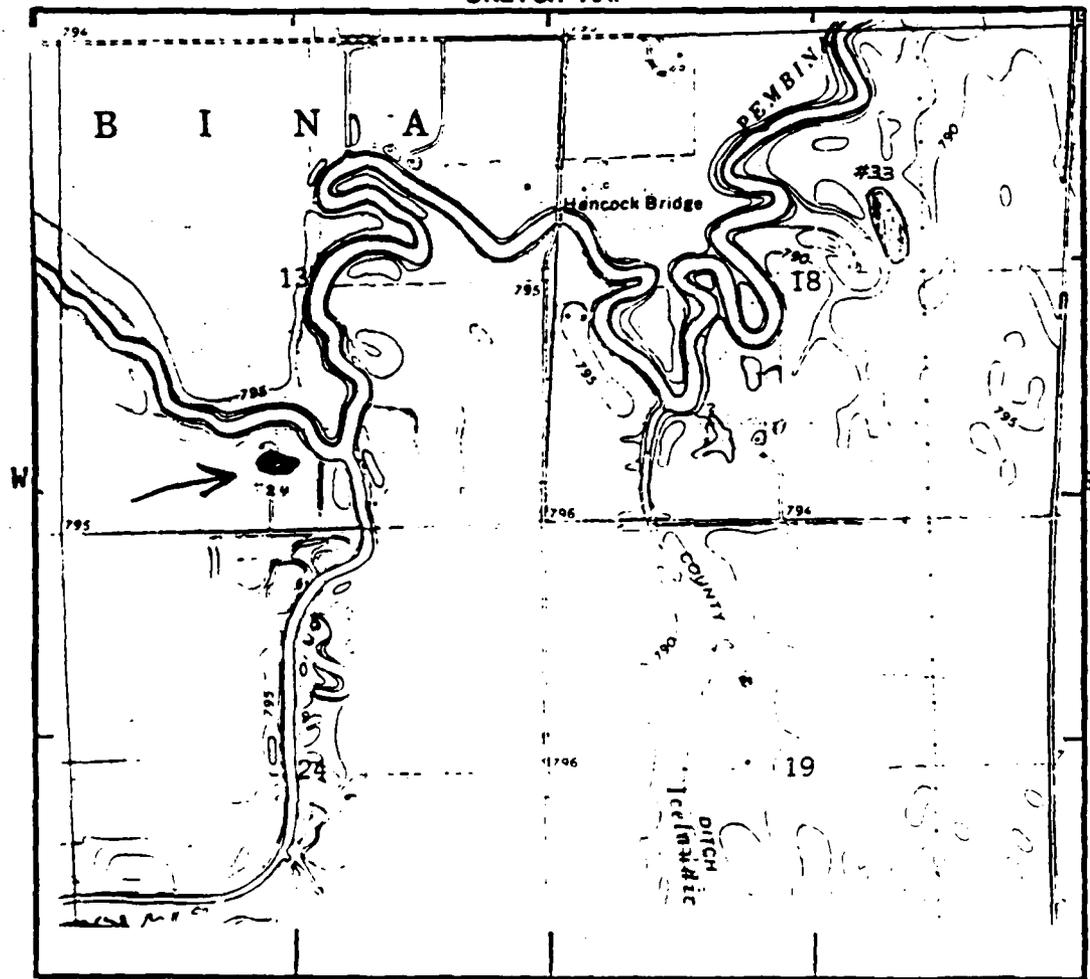
B.W. Color

Photo I.D. Code North

Storage Location _____

SKETCH MAP

Map Key:



Map Scale:

Recorded by Kenneth and Marie Brown

Date June 5, 1983

1. NE
2. E
3. S
4. W
5. NE
6. SE
7. SW
8. NW
9. C

I. SITE I.D.

Field Code 1-224 SITS #
 State 32 County 014 Site Number 6
 11 13 15 18
 Site Name _____ LTL Twp R Sec QQQ QQ Q
 _____ 156 171 6 5 7
 19 38 39 40 47 48 49 50
 Map Quad _____ LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a
014-100LS-01 _____
 51 68 69 70 77 78 79 80

II. SITE DESCRIPTION

City _____ Site Area 4000 m²
 1 15 16 23
 Street # _____ Steet Name _____
 24 29 30 49
 Feature # _____ # of Features _____ Theme 1 _____ Theme 2 _____
 50 51 52 53 54 55 56 57
 Orig Use 1 _____ Orig Use 2 _____ Pres Use 1 _____ Pres Use 2 _____
1-6 _____
 58 60 61 63 64 66 67 69
 Year Constructed _____ Dating Technique _____ Ethnic _____ Style _____
 70 73 74 75 76 77 79
 Structural Comp _____ Exterior Finish 1 _____ Exterior Finish 2 _____
1-1 _____
 79 80 1 2 3 4
 Architect/Builder _____
 5 37

IV. C.R.M.

Ownership _____ Site Condition _____ Collection _____ Test _____ Excavation _____
38 39 40 41 42
 Fieldwork Date _____ Management Recommendation _____
43 45 49
 Additional Information
SEE ABOVE
 1 40

OFFICE USE ONLY

OFFICE USE ONLY
 Soil Association _____ Ecozone _____ Area Signf _____ CR Type _____ Verified Site _____ Non-Site _____
41 43 44 45 46 47 48 49
 State Registry _____ National Register _____ E C F T F MS Number _____
50 51 52 53 54 60

1. Access Take Exit No. 172 off of Interstate 29, go west 1 mile, then turn south and go 3 miles, turn east on gravel road, go east 1/2 mile, then turn north again, go north 1/3 mile. Log house is in grove of trees and near a new metal barn.
2. Description of Site Site is a log house, T-shaped, gable roof, clapboard siding over the squared-off logs. Logs are dove-tailed at the corners. No foundation. House is in good condition, considering its age.
3. List Feature(s) by Type & Number 1
4. Location Integrity: Original Site Moved (Note Dates) _____
5. Plan Shape: Apse & Narthex _____ Apse & Transept _____ Apsidal _____
Circular _____ Cruciform _____ H-Shaped _____ Irregular _____ L-Shaped _____
Narthex & Transept _____ Polygonal _____ Rectangular _____ Square _____
T-Shaped U-Shaped _____ Other _____
6. Number of Stories 1
7. Roof Shape: Dome _____ False Front _____ Flat _____ Gable Gable, Bellcast _____
Gable, Center _____ Gable, Cross _____ Gable, Hipped _____
Gable, Offset _____ Gambrel _____ Hip _____ Hip, Bellcast _____ Hip, Gabled _____
Hip, Truncated _____ Mansard _____ Mansard, Bellcast _____
Pyramidal _____ Quonset _____ Saltbox _____ Sawtooth _____ Shed _____
Valuted/Arched _____ Other _____
8. Roof Material: Unknown _____ Asbestos Shingles _____ Asphalt, Roll Roofing _____
Asphalt, Shingles _____ Clay Tile _____ Earth/Clay _____
Metal _____ Tarpaper _____ Wood Shingles Other _____
9. Basement: Yes _____ No Partial _____ Unknown _____
10. Basement or Foundation Material: Unknown _____ Brick _____ Clay Tile _____
Concrete, Block _____ Concrete, Poured/Precast _____ Concrete, Simulated Stone Block _____
Earthen Brick, Adobe _____ Log Plastered Earth/Plastered Clay _____
Sod _____ Steel Frame _____ Stone, Cut _____
Stone, Random _____ Stone, Slab _____ Wood Other _____

11. Describe Alterations (Note Dates) A north room has been added, consists of wood frame with clapboard siding. Gable roof.
12. Samples Collected none
13. Location of Samples _____
14. Owner's Name, Address, & Phone # Art Wosick, Minto, N.D.
15. Previous Owners (Note Dates) _____
16. Map Sources Checked (Note Dates): Plat Map _____ County Atlas _____ Topographic Map xxx Sanborn Map _____ Other Insurance Map _____ Other _____
17. Other Historical Information _____
18. Project Title Red River Ring Levee Survey Project Supervisor(s) Kenneth Brown
19. Report Title Red River Ring Levee Survey Author(s) Ken and Marie Brown
20. Statement of Integrity The house is in pretty good condition. The logs have been protected from the elements by having been covered with horizontal clapboard siding. The first level of logs are slightly rotted, but all other levels of logs seem very solid.
21. Statement of Significance This is one of the few remaining, original log houses built by the first homesteaders in northeast North Dakota. Most log houses have been destroyed. This T-shaped log house is in good condition and is an excellent example of the early Euro-American architecture of the region.
22. Comments/References It is recommended that some effort should be made to try to preserve the log house for future generations.

Recorded by Kenneth and Marie BrownDate June 5, 1983

TOPO

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

Mark the boundaries of the site on the topographic section.

No Photo Available

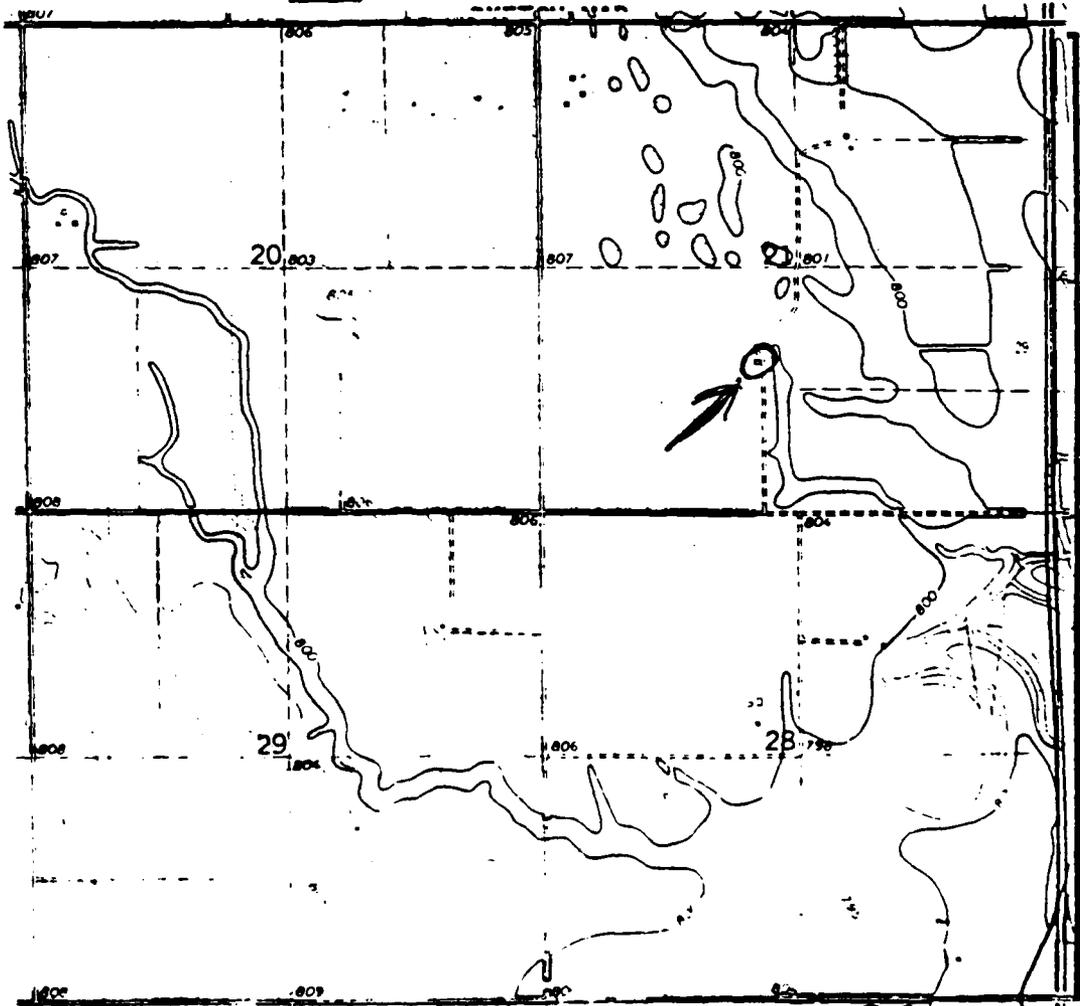
SITE PHOTO

B.W. Color

Photo I.D. Code _____

Storage Location _____

Map Key:



Map Scale:

Recorded by Ken and Marie Brown,

Date June 5, 1983

I. SITE I.D.

Field Code <u>USD-177</u>	SITS # State <u>32</u> County <u>WA</u> Site Number <u>7</u>
Site Name <u>ACTON</u>	LTL Twp R Sec QQQ QQ Q <u>157</u> <u>51</u> <u>25</u> <u>-</u> <u>Z</u> <u>8</u>
Map Quad <u>16 NW/4 S NW</u>	LTL _a Twp _a R _a Sec _a QQQ _a QQ _a Q _a <u>69</u> <u>70</u> <u>77</u> <u>78</u> <u>79</u> <u>80</u>

1. N $\frac{1}{2}$
2. E $\frac{1}{2}$
3. S $\frac{1}{2}$
4. W $\frac{1}{2}$
5. NE $\frac{1}{4}$
6. SE $\frac{1}{4}$
7. SW $\frac{1}{4}$
8. NW $\frac{1}{4}$
9. C

II. SITE DESCRIPTION

City <u>ACTON</u>	Site Area <u>9,880.00</u> m ²		
Street # <u>24</u> <u>29</u>	Street Name <u>30</u> <u>49</u>		
Feature # <u>50</u> <u>51</u>	# of Features <u>4</u>	Theme 1 <u>10</u>	Theme 2 <u>56</u> <u>57</u>
Orig Use 1 <u>ICA</u>	Orig Use 2 <u>20</u>	Pres Use 1 <u>1</u>	Pres Use 2 <u>67</u> <u>69</u>
Year Constructed <u>1879</u>	Dating Technique <u>6</u>	Ethnic <u>13</u>	Style <u>77</u> <u>78</u>
Structural Comp <u>15</u>	Exterior Finish 1 <u>19</u>	Exterior Finish 2 <u>3</u> <u>4</u>	
Architect/Builder <u>5</u>			

III. DATA

Ownership <u>3</u>	Site Condition <u>2</u>	Collection <u>1</u>	Test <u>0</u>	Excavation <u>42</u>
Fieldwork Date <u>15</u>	Management Recommendation <u>4</u>			
Additional Information <u>TOUR SITE</u>				

Soil Association <u>42</u> <u>43</u>	Ecozone <u>44</u> <u>45</u>	Area Signf <u>46</u>	CR Type <u>47</u>	Verified Site <u>48</u>	Non-Site <u>49</u>
State Registry <u>50</u>	National Register <u>51</u>	E C F <u>52</u>	T F <u>53</u>	MS Number <u>54</u>	<u>60</u>

Coder _____

Date Coded _____

1. Access Go 3 miles south on Interstate 29 where it crosses the Park River. Exit, go east 1 mile, turn south on gravel road, go south 1 mile. Site is along west edge of the Red River. Between the river and the North-South section road. The town site is in pasture and grass. An abandoned school stands along side the section road, (east of road).
2. Description of Site The site covers an area of about 40 acres. The site is in pasture and trees. A school and some town buildings are all that remain standing of the town. An unmarked grave yard is reported to exist somewhere within the town area. Acton was founded in 1879 and was the largest town in North Dakota in 1881, but was abandoned by most residents 10 years later when the railroad by-passed the town 8 miles further west at Minto. Most of the town buildings were moved on sleds during the winter season, late 1880's.
3. List Feature(s) by Type & Number school-1, store-2, house-3, barn-4
4. Location Integrity: Original Site Moved (Note Dates) _____
5. Plan Shape: Apose & Narthex _____ Apse & Transept _____ Apsidal _____ Circular _____ Cruciform _____ H-Shaped _____ Irregular _____ L-Shaped _____ Narthex & Transept _____ Polygonal _____ Rectangular Square _____ T-Shaped _____ U-Shaped _____ Other _____
6. Number of Stories all buildings are 1 story
7. Roof Shape: Dome _____ False Front _____ Flat _____ Gable Gable, Bellcast _____ Gable, Center _____ Gable, Cross _____ Gable, Hipped _____ Gable, Offset _____ Gambrel _____ Hip _____ Hip, Bellcast _____ Hip, Gabled _____ Hip, Truncated _____ Mansard _____ Mansard, Bellcast _____ Pyramidal _____ Quonset _____ Saltbox _____ Sawtooth _____ Shed _____ Valuted/Arched _____ Other _____
8. Roof Material: Unknown _____ Asbestos Shingles _____ Asphalt, Roll Roofing _____ Asphalt, Shingles _____ Clay Tile _____ Earth/Clay _____ Metal _____ Tarpaper _____ Wood Shingles Other _____
9. Basement: Yes _____ No Partial _____ Unknown _____
10. Basement or Foundation Material: Unknown _____ Brick _____ Clay Tile _____ Concrete, Block _____ Concrete, Poured/Precast _____ Concrete, Simulated Stone Block _____ Earthen Brick/Adobe _____ Log _____ Rammed Earth/Puddled Clay _____ Sod _____ Steel Frame _____ Stone, Cut Stone, Random _____ Stone, Slab Wood Other _____

11. Describe Alterations (Note Dates) Town founded 1879, abandoned in late 1880's/

12. Samples Collected none

13. Location of Samples _____

14. Owner's Name, Address, & Phone # Earl Schultz, Minto, N.D.

15. Previous Owners (Note Dates) _____

16. Map Sources Checked (Note Dates): Plat Map xxx County Atlas _____ Topographic
 Map xxx Sanborn Map _____ Other Insurance Map _____ Other _____
17. Other Historical Information _____

18. Project Title Red River Ring Levee Survey Project Supervisor(s) Kenneth Brown
19. Report Title Red River Ring Levee Survey Author(s) Ken and Marie Brown
20. Statement of Integrity Most of the town has been moved to other locations.
 A store, barn, house and school remain on the original town site. The house
 is abandoned. The house, barn and school appear to be in good condition, while
 the store is in poor condition.
21. Statement of Significance Acton was a major town for the first homesteaders who
 settled in northeastern North Dakota. It was a major town for steamboats on
 the Red River. The town, in 1881, had a population of over 400 people.
 There is reported to be an unmarked cemetery in the town. This should be investigated.
22. Comments/References It is recommended that further field investigations be made at the town site
 to locate the cemetery and placement of major buildings.

Recorded by Kenneth and Marie Brown

Date June 5, 1968

7

TOPO

Attach the portion of
7.5' U.S.G.S. topograp
quadrangle that shows
location of the site.

Mark the boundaries o
site on the topograph
section.



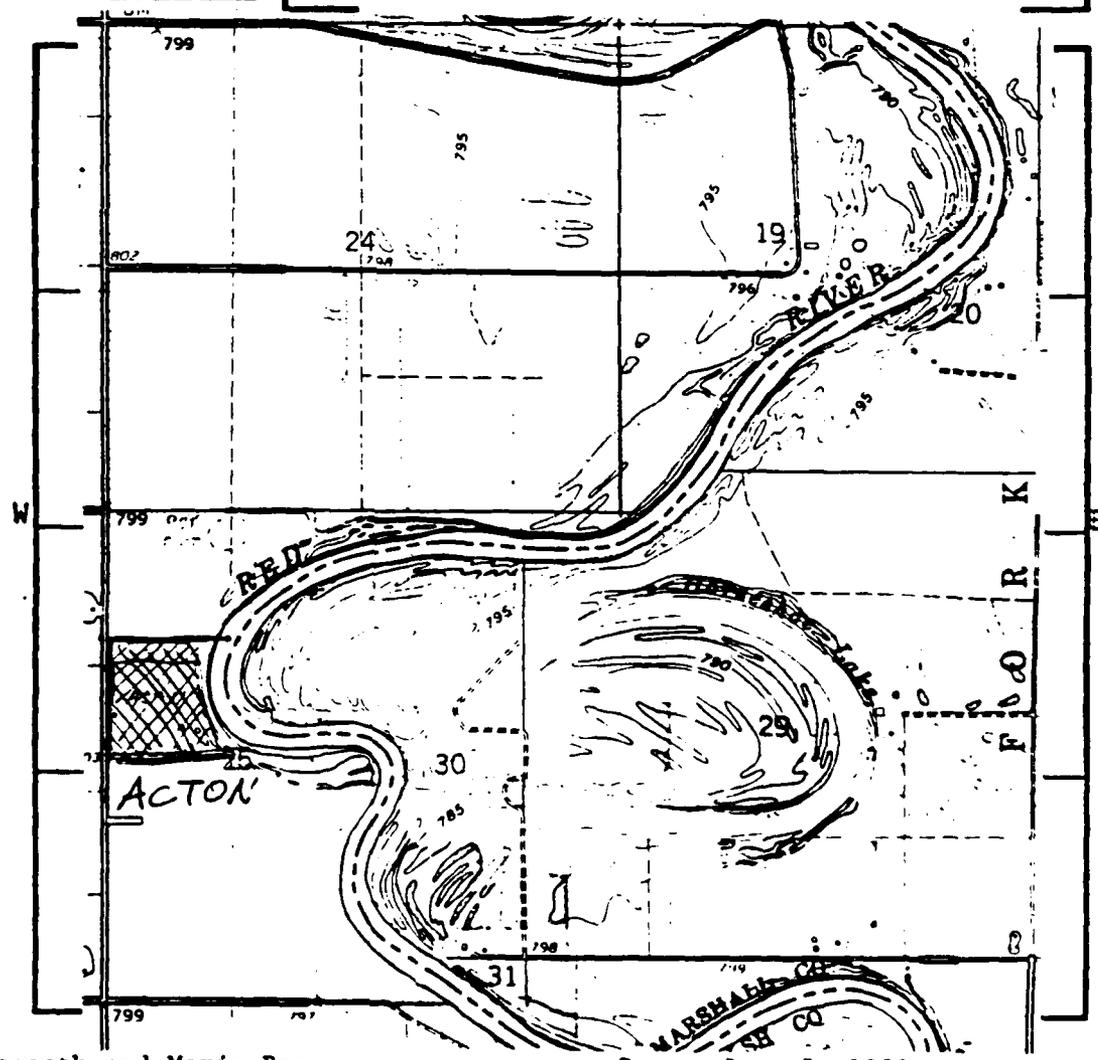
B.W. Color

Photo I.D. Code _____

Storage Location _____

Map Key:

Map Scale:



Recorded by Kenneth and Marie Brown

Date June 5, 1983

I. SITE I.D.

Field Code USD-245 SITS #
 State 32 County OPA Site Number 8
 1 10 11 13 15 18
 Site Name _____ LTL Twp R Sec QQQ QQ Q
 _____ 156 5128 6 8 5
 19 38 39 40 47 48 49 50
 Map Quad _____ LTL^a Twp^a R^a Sec^a QQQ^a QQ^a Q^a
BIG WOODS SW _____ 156 5128 1 7 5
 51 68 69 70 77 78 79 80

1. N₂
2. E₂
3. S₂
4. W₂
5. NE₂
6. SE₂
7. SW₂
8. NW₂
9. C

II. SITE DESCRIPTION

1	Conical Timber Lodge	2	Bone (worked)	Site Area
3	<u>I</u> CM Scatter	4	Ceramics (Native)	5 <u>15,000</u> 12 m ²
13	Earthlodge Village	14	Charcoal	Cultural Depth
15	Earthworks	16	Copper (Native)	17 <u>20</u> 21
17	Fortification	18	Faunal Remains (skeletal)	19
22	Grave	23	Fire Cracked Rock	Depth Indicator
24	Hearth	25	Floral Remains	26
26	Jump	27	Fossil	28 <u>5</u>
29	Mound	30	Hide, Hair, Fur	CULTURAL/TEMPORAL AFFILIATION
31	Other Rock Features	32	Human Remains	37 <u>—</u> Paleo
33	Pit	34	<u>I</u> Projectile Point	40 <u>—</u> Archaic
35	Quarry/Mine	36	Shell (worked)	43 <u>I</u> Late Prehistoric
38	Rock Art	39	<u>I</u> Stone, chipped	46 <u>—</u> 47 Historic
41	Rock Shelter	42	Stone, ground	50 <u>—</u> Period Unknown
44	Stone Circle	45	Trade Good (non-Native)	
48	Trail (not recent)	49	Wood (worked)	
51	Miscellaneous	52	Other	

53 — Isolated Find CM Density 54 L Basis for Dating 55 3

III. ENVIRONMENT

Landform 1 L Landform 2 15 Slope/Exposure 10 View, degree 4 View, distance 2
 56 57 58 59 60 61 62
 Elevation 244 m. Drainage System FOREST RIVER Dist Perm Water 10 m.
 63 67 68 69 70 71 72
 Perm Water Type 3 Dist Seas Water 28 Seas Water Type 33 Ecosystem 34 37

IV. C.R.M.

Ownership 3 Site Condition 5 Collection 3 Test 0 Excavation —
 38 39 40 41 42
 Fieldwork Date 5.17.83 Management Recommendation 4
 43 48 49
 Additional Information _____

OFFICE USE ONLY

OFFICE USE ONLY
 Soil Association _____ Ecozone _____ Area Signf _____ CR Type _____ Verified Site _____ Non-Site _____
 42 43 44 45 46 47 48 49
 State Register _____ National Register _____ E C F T F Ms Number _____
 50 51 52 53 54 55 56 57 58 59 60 61

Access Take Exit No. 172 off of Interstate Highway 20, go west on gravel road
1 mile, turn south, go south 3 miles, go east on gravel road 2 1/4 mile, turn
south, go south 1/2 mile, turn east to farmstead in grove of trees. Farmstead
is abandoned, but barns are still used. Site is along terrace edge of Forest
River which is adjacent to the farmstead.

2. Description of Site Site is in cultivation and is part of a farmstead yard.
Site occurs on terrace of the Forest River.

3. Description of Cultural Materials (Quantify and identify) one projectile point, chert flakes.

1 complete, side-notched projectile point (chert); 1 side scraper; 4 flakes;
2 shatter; The owner reports finding stone artifacts along time ago before
use of large tractors (you can't see small items in the soil when you sit 8 feet
off of the ground).

8 # of items of cultural material observed 8 # Collected

4. Artifact Repository University of South Dakota Archaeology Laboratory.

5. Description of Subsurface Testing Shovel tests

8

6. Current Use of Site crops

7. Owner's Name/Address Walter Gerszewski, Minto, N.D.

8. Vegetation none, plowed

9. Cover (% of visible ground) 100%

10. Man-hours spent on site 5

11. Project Title Red River Farmstead Survey

P.I. Kenneth L. Brown

12. Report Title Red River Farmstead Survey

Author Ken and Marie Brown

13. Other Published References none

14. Description of Collections Observed _____

15. Owner-Address of Collections Observed _____

16. Statement of Integrity _____

17. Statement of Significance The site potentially contains buried cultural remains. The site may yield significant information regarding the prehistory of the region. The site appears to be potentially buried in alluvium and may contain buried cultural features.

18. Comments/References _____

Recorded by Ken and Marie Brown Date June 5, 1983

TOPO

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

Mark the boundaries of the site on the topographic section.



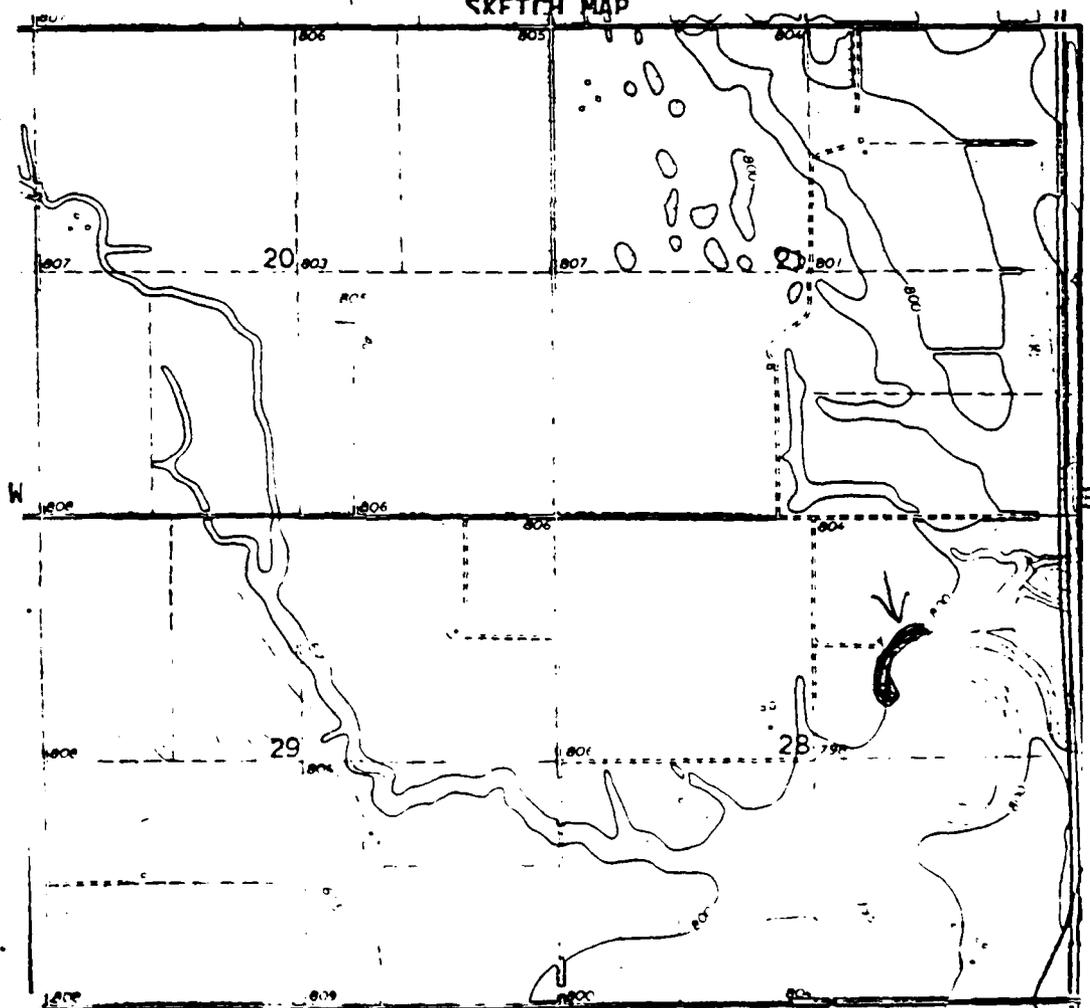
B.W. Color

Photo I.D. Code east

Storage Location _____

SKETCH MAP

Map Key:



Map Scale:

Recorded by Ken and Marie Brown

Date June 5, 1983

Field Code USD-278 SITS #
 State 32 County WA Site Number 9
 1. 10 11 13 15 18
 Site Name _____ LTL Twp R Sec QQQ QO Q
 19 38 39 40 47 48 49 50
 Map Quad BIG WOODS SW LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a
 51 68 69 70 77 78 79 80

1. N₂
2. E₂
3. S₂
4. A₂
5. NE₂
6. SE
7. Sh
8. NW₂
9. (

I. SITE I.D.

II. SITE DESCRIPTION

1 <input checked="" type="checkbox"/> Conical Timber Lodge	2 <input type="checkbox"/> Bone (worked)	Site Area
3 <input checked="" type="checkbox"/> CM Scatter	4 <input type="checkbox"/> Ceramics (Native)	5 <u>50000</u> 12 m ²
13 <input type="checkbox"/> Earthlodge Village	14 <input type="checkbox"/> Charcoal	Cultural Depth
15 <input type="checkbox"/> Earthworks	16 <input type="checkbox"/> Copper (Native)	19 <u>20</u> 21
17 <input type="checkbox"/> Fortification	18 <input type="checkbox"/> Faunal Remains (skeletal)	Depth Indicator
22 <input type="checkbox"/> Grave	23 <input type="checkbox"/> Fire Cracked Rock	28 <u>5</u>
24 <input type="checkbox"/> Hearth	25 <input type="checkbox"/> Floral Remains	CULTURAL/TEMPORAL AFFILIATION
26 <input type="checkbox"/> Jump	27 <input type="checkbox"/> Fossil	37 <input type="checkbox"/> Paleo
29 <input type="checkbox"/> Mound	30 <input type="checkbox"/> Hide, Hair, Fur	40 <input type="checkbox"/> Archaic
31 <input type="checkbox"/> Other Rock Features	32 <input type="checkbox"/> Human Remains	43 <input type="checkbox"/> Late Prehistoric
33 <input type="checkbox"/> Pit	34 <input type="checkbox"/> Projectile Point	46 <input type="checkbox"/> 47 Historic
35 <input type="checkbox"/> Quarry/Mine	36 <input type="checkbox"/> Shell (worked)	50 <input checked="" type="checkbox"/> Period Unknown
38 <input type="checkbox"/> Rock Art	39 <input checked="" type="checkbox"/> Stone, chipped	
41 <input type="checkbox"/> Rock Shelter	42 <input type="checkbox"/> Stone, ground	
44 <input type="checkbox"/> Stone Circle	45 <input type="checkbox"/> Trade Good (non-Native)	
48 <input type="checkbox"/> Trail (not recent)	49 <input type="checkbox"/> Wood (worked)	
51 <input type="checkbox"/> Miscellaneous	52 <input type="checkbox"/> Other	
53 <input type="checkbox"/> Isolated Find	CM Density	Basis for Dating
	54 <u>1</u>	55 _____

III. ENVIRONMENT

Landform 1 1 Landform 2 15 Slope/Exposure 10 View, degree 2 View, distance 2
 56 57 58 59 60 61 62
 Elevation 244 m. Drainage System MARALS RIVER Dist Perm Water 50 m.
 63 67 1 21 22 26
 Perm Water Type 3 Dist Seas Water _____ Seas Water Type _____ Ecosystem _____
 27 28 32 33 34 37

IV. C.R.M.

Ownership 3 Site Condition 5 Collection 3 Test 0 Excavation _____
 38 39 40 41 42
 Fieldwork Date 5.17.83 Management Recommendation _____
 43 48 49
 Additional Information _____
 1 _____ 40

OFFICE USE ONLY

OFFICE USE ONLY
 Soil Association _____ Ecozone _____ Area Signf _____ CR Type _____ Verified Site _____ Non-Site _____
 41 43 44 45 46 47 48 49
 State Registry _____ National Register _____ E C F T F MS Number _____
 50 51 52 53 54 60

1. Access Exit off of Interstate 29 just south of where it crosses the
Forest River. Go east on gravel road one mile, turn south, go south 3 miles,
turn west, go west 1/2 mile. Site is north of section road and is on east side
of farm residence.

2. Description of Site Site is located on terrace of the North Marais River,
in a cultivated field. A portion of the site has been destroyed by construction
of a farmhouse and outbuildings.

3. Description of Cultural Materials (Quantify and identify) _____
1 Knife River flint flake and 1 chert flake. The owner (Dominic Duray) reports
finding several stone artifacts in the site area prior to the 1979 flood. The
1979 flood apparently caused alluviation to occur, further burying the site.

2 # of items of cultural material observed 2 # Collected

4. Artifact Repository University of South Dakota Archaeology Laboratory.

5. Description of Subsurface Testing shovel test, nothing recovered. Tested areas
marked on topo map.

6. Current Use of Site agricultural

7. Owner's Name/Address Dominic Duray

8. Vegetation none, plowed

9. Cover (% of visible ground) 100%

10. Man-hours spent on site 3

11. Project Title Red River Farmstead Survey

P.I. Kenneth L. Brown

12. Report Title Red River Farmstead Survey

Author Ken and Marie Brown

13. Other Published References none

14. Description of Collections Observed

15. Owner-Address of Collections Observed

16. Statement of Integrity

17. Statement of Significance The site potentially contains buried cultural remains which may help elucidate the culture history of the region. Therefore, the site, based upon available data, should be considered potentially significant until determined otherwise.

18. Comments/References

Recorded by Ken and Marie Brown Date June 5, 1983

TOPO

Attach the portion of the 7.5' U.S.G.S. topographic quadrangle that shows the location of the site.

Mark the boundaries of the site on the topographic section.



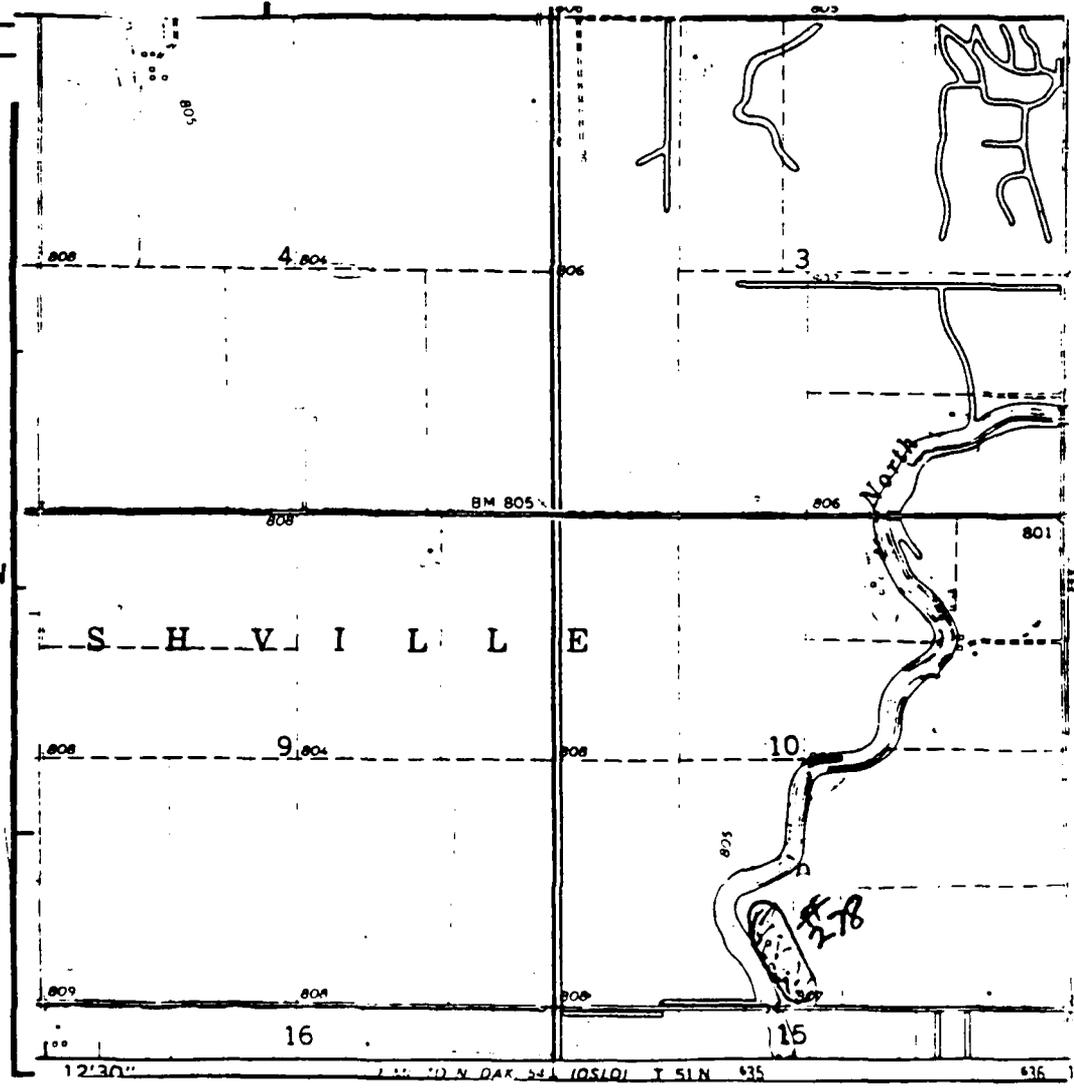
B.W. Color

Photo I.D. Code North

Storage Location _____

Map Key:

Map Scale:



Recorded by Ken and Marie Brown

Date June 5, 1983

I. SITE I.D.

Field Code USD-0 SITS #
 State 32 County WA Site Number
 11 13 15 18
 Site Name ROY'S POST LTL Twp R Sec QQQ QQ Q
 19 38 157 5125 1 8
 Map Quad BIG WOODS NW LTL_a Twp_a R_a Sec_a QQQ_a QQ_a Q_a
 51 68 69 70 77 78 79 80

1. N₂
2. E₁
- 3.
4. W₂
5. NE₁
6. SE
7. SW
8. NW₂
9. (

II. SITE DESCRIPTION

Theme 1	Site Type	Cultural Material	Site Area
1 <u>3</u> 2	3 <u>CM Scatter</u>	4 <u>Bone (worked)</u>	5 <u>12</u> m ²
	13 <u>Chimney</u>	14 <u>Ceramics (Euro Am)</u>	
Theme 2	15 <u>Depression</u>	16 <u>Charcoal</u>	Cultural Depth
17 <u>18</u>	19 <u>Dump</u>	20 <u>Cloth</u>	21 <u>23</u>
	24 <u>Earthworks</u>	25 <u>Faunal Remains</u>	Depth Indicator
	26 <u>Fortification</u>	27 <u>Fire Cracked Rock</u>	30 <u> </u>
	28 <u>Foundation</u>	29 <u>Floral Remains</u>	Occupation Date
	31 <u>Grave</u>	32 <u>Glass</u>	Begin <u>1797</u> 42 43 End <u>1800</u> 46
	33 <u>Hearth</u>	34 <u>Hide, Hair, Fur</u>	
	35 <u>Machinery</u>	36 <u>Human Remains</u>	Basis for Dating
	37 <u>Quarry/Mine</u>	38 <u>Masonry</u>	53 <u>10</u> 54
	47 <u>Rock Art</u>	48 <u>Metal</u>	
	49 <u>Trail</u>	50 <u>Plastic</u>	CM Density Isolated Find
	51 <u>Wreck (ship)</u>	52 <u>Rubber</u>	59 <u>0</u> 60 <u> </u>
	55 <u>Other</u>	56 <u>Shell (worked)</u>	
		57 <u>Wood (worked)</u>	
		58 <u>Other</u>	

III. ENVIRONMENT

Landform 1	Landform 2	Slope/Exposure	View, degree	View, distance
<u>1</u>	<u>15</u>	<u>10</u>	<u>3</u>	<u>2</u>
61 Elevation	62 63 Drainage System	64 65	66	67 Dist Perm Water
<u>242</u> m.	<u>RED RIVER</u>			<u>200</u> m.
68 Perm Water Type	72 Dist Seas Water	21 Seas Water Type	22 Ecosystem	26
<u>3</u>	<u>28 32</u>	<u>33</u>	<u>34 37</u>	

IV. C.R.M.

Ownership	Site Condition	Collection	Test	Excavation
<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
38	39	40	41	42
Fieldwork Date	Management Recommendation			
<u>51883</u>	<u>4</u>			
43 48	49			
Additional Information				
<u> </u>				

OFFICE USE ONLY

Soil Association	Ecozone	Area Signf	CR Type	Verified Site	Non-Site
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
41 43	44 45	46	47	48	49
State Registry	National Register	E C F	T F	MS Number	
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
50	51	52	53	54	60

1. Access Go 3 miles south on Interstate 29 where it crosses the Park River. Exit
go east 1 mile, turn south on gravel road, go south 1 mile. Site is reported
to be along the north edge of Section 25, north of the bend in the Red River.
Site is in a cultivated field .

2. Description of Site Nothing standing remains of the site. Site may be
buried in alluvium. Since no cultural material was observed nor collected,
this should probably be treated as a site lead until further investigated.

3. Description of Cultural Materials (Quantify and identify) _____
none, Mr. John Rolczynski, of Minto, N.D. reports the he and some friends found
some flint-lock gun parts with the aid of metal detectors. The metal was
buried below plowzone. This suggests the cultural remains are buried in
recent alluvium from the Red River.

0 # of items of cultural material observed 0 # Collected

4. Artifact Repository _____

5. Description of Subsurface Testing shovel tests, nothing was recovered. Future
field examination should make use of metal detectors.

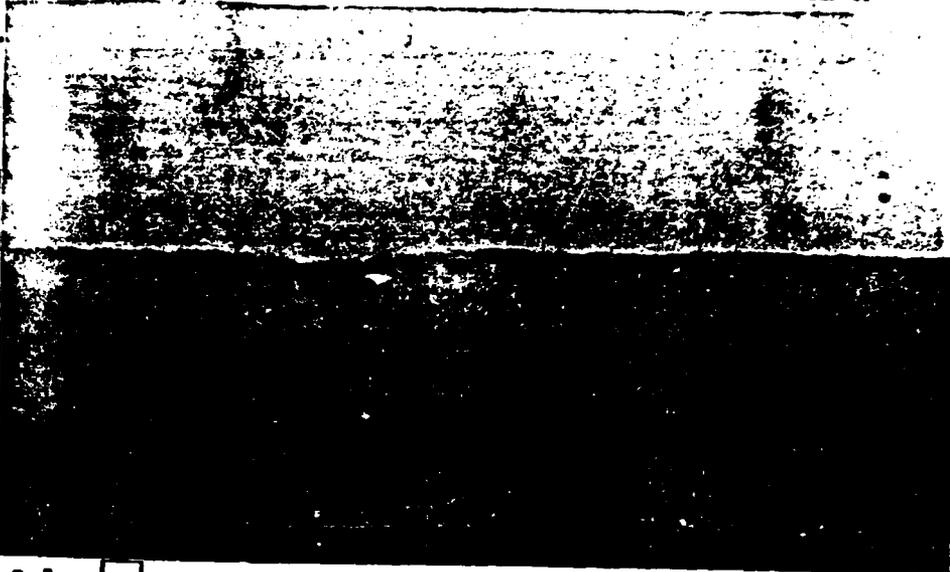
6. Current Use of Site Crops
7. Owner's Name/Address Earl Schultz, Minto, N.D.
8. Vegetation none, plowed
9. Cover (% of visible ground) 100
10. Man-hours spent on site 5
11. Project Title Red River Farmstead Survey
P.I. Kenneth L. Brown
12. Report Title Red River Farmstead Survey
Author Kenneth and Marie Brown
13. Other Published References First Settler in Walsh in 1797: In St. Thomas News
by John Rolczynski, Minto, N.D.
14. Description of Collections Observed none
15. Owner-Address of Collections Observed _____
16. Statement of Integrity _____
17. Statement of Significance This reported fur trading post has previously been mislocated further north. Flint-lock gun parts have been reported found with the aid of metal detectors. This is the first Euro-American settlement in what is presently North Dakota. The site is potentially very significant and is probably buried in alluvium.
18. Comments/References See Mr. John Rolczynski, Minto, N.D.

Recorded by Kenneth and Marie BrownDate June 5, 1983

TOPO-

Attach the portion of 7.5' U.S.G.S. topographic quadrangle that shows location of the site.

Mark the boundaries of site on the topographic section.



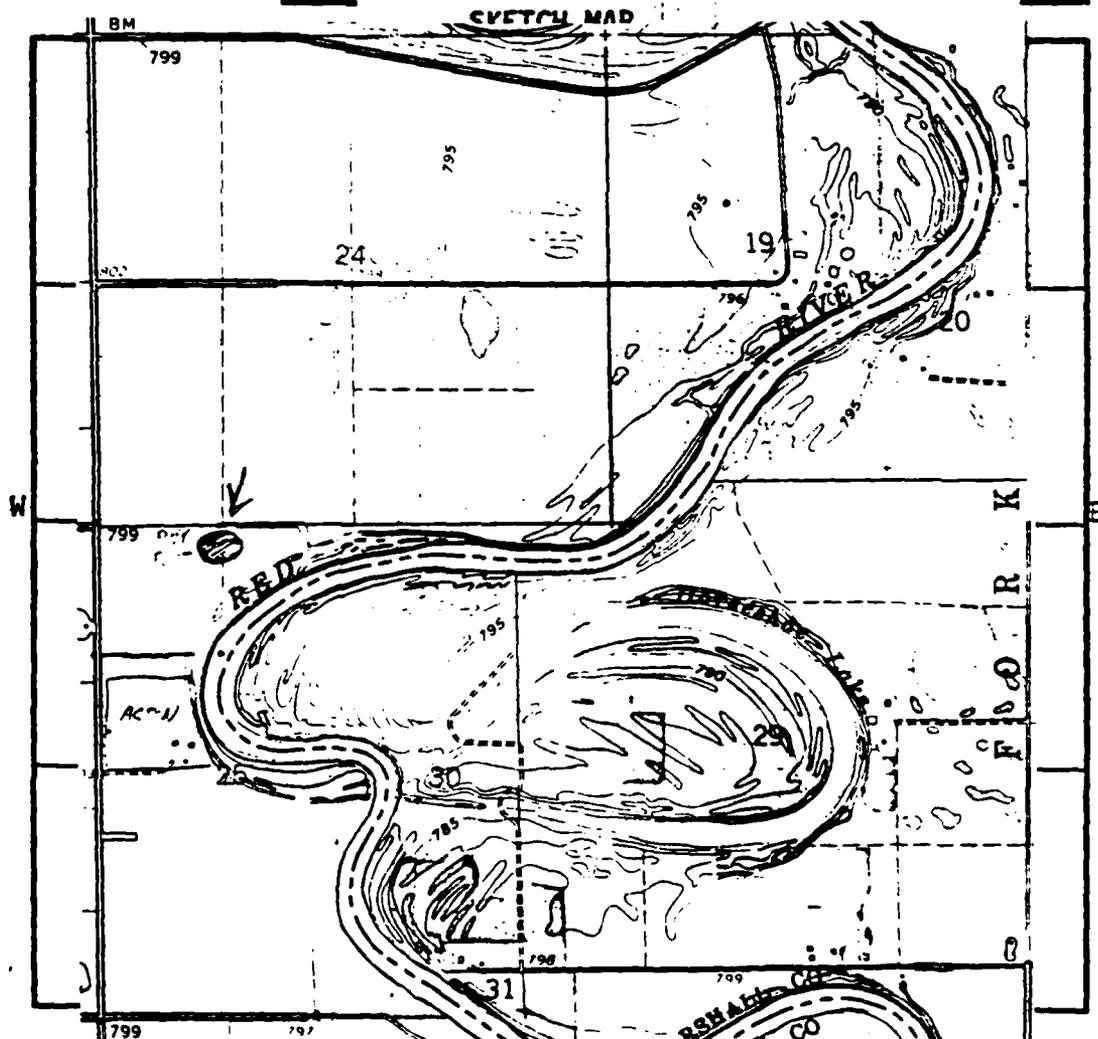
B.W. Color

Photo I.D. Code _____

Storage Location _____

Map Key:

Map Scale:



Recorded by Ken and Marie Brown

Date June 5, 1983

Site Leads

<u>7.5 minute quad</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Legal</u>
Pembina	T162N	51W	2	NE $\frac{1}{2}$ SW $\frac{1}{2}$
Bathgate NE	T163N	52W	24	SW $\frac{1}{2}$ NW $\frac{1}{2}$ SE $\frac{1}{2}$
Joliette	T162N	51W	23	W $\frac{1}{2}$ NW $\frac{1}{2}$ NE $\frac{1}{2}$
Big Woods NW	T157N	50W	7	
		51W	12	SE $\frac{1}{2}$ NE $\frac{1}{2}$
Big Woods NW (Acton Town Hall and Liquor Store)	T157N	51W	23	SW $\frac{1}{2}$ SW $\frac{1}{2}$ SW $\frac{1}{2}$
Big Woods SW (Paleo-Indian and/or Early Archaic)	T155N	51W	10	SW $\frac{1}{2}$ NE $\frac{1}{2}$

APPENDIX B
Scope of Work
Personnel Vitae

SCOPE OF WORK
CULTURAL RESOURCE INVESTIGATION
OF RED RIVER OF THE NORTH
FARMSTEAD RING LEVEES, WALSH AND
PEMBINA COUNTIES, NORTH DAKOTA

1.00 INTRODUCTION

1.01 The Contractor will undertake a cultural resource investigation of a 15-percent sample of farmstead ring levees in Walsh and Pembina Counties, North Dakota.

1.02 This cultural resources inventory partially fulfills the obligations of the Corps of Engineers (Corps) regarding cultural resources, as set forth in the National Historic Preservation Act of 1966 (Public Law (P.L.) 89-665), as amended; the National Environmental Policy Act of 1969 (P.L. 91-190); Executive Order (E.O.) 11593 for the "Protection and Enhancement of the Cultural Environment" (Federal Register, 13 May 1971); the Archaeological and Historical Preservation Act of 1974 (P.L. 93-291); the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties (36 CFR Part 800); the Department of the Interior guidelines concerning cultural resources (36 CFR Part 60); and applicable Corps regulations (ER 1105-2-50).

1.03 The laws listed above establish the importance of Federal leadership, through the various responsible agencies, in locating and preserving cultural resources within project areas. Specific steps to comply with these laws, particularly as directed in P.L. 93-291 and E.O. 11593, are being taken by the Corps "...to assure that Federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures, and objects of historical, architectural, or archaeological significance." A part of that responsibility is to locate, inventory, and nominate to the Secretary of the Interior all such sites in the project area that appear to qualify for listing on the National Register of Historic Places.

1.04 Executive Orders 11593 and the 1980 amendments to the National Historic Preservation Act further direct Federal agencies "...to assure that any federally owned property that might qualify for nomination is not inadvertently transferred, sold, demolished or substantially altered." In addition, the Corps is directed to administer its policies, plans, and programs so that federally and non-federally owned sites, structures, and objects of historical, architectural, or archaeological significance are preserved and maintained for the inspiration and benefit of the people.

1.05 This cultural resources investigation will serve several functions. The report will be a planning tool to aid the Corps in meeting its obligations to preserve and protect our cultural heritage. It will be a comprehensive, scholarly document that not only fulfills federally mandated legal requirements but also serves as a scientific reference for future professional studies. It will identify sites which may require additional investigations and which may have potential for public-use development. Thus, the report must be analytical, not just descriptive.

2.00 DEFINITIONS

2.01 For the purposes of this study, the Contractor's cultural resource investigation will include a Phase I cultural resource survey.

2.02 "Cultural resources" are defined to include any building, site, district, structure, object, data, or other material relating to the history, architecture, archaeology, or culture of an area.

2.03 "Phase I cultural resources survey" is defined as an intensive, on-the-ground survey and testing of an area in order to determine the number and extent of the archaeological, historic, and architectural resources present and their relationship to all the project alternatives and features. A Phase I cultural resources survey will result in data adequate to assess the general nature of all sites present; a recommendation for additional testing of those resources that, in the professional opinion of the Contractor, may provide important cultural and scientific information; and detailed time and cost estimates for Phase II testing.

3.00 PROJECT DESCRIPTION

3.01 The Corps is currently studying the feasibility of constructing ring levees around those farmsteads within the Red River of the North floodplain that experience flooding problems.

3.02 Although this study could eventually expand to include the entire Red River of the North floodplain, it currently focuses on 310 farmsteads within the floodplain in Walsh and Pembina Counties of North Dakota.

3.03 Because this study is only in the preliminary planning stage, the exact nature and location of the proposed ring levee construction are not known at this time. It is expected, however, that construction would be confined to areas immediately adjacent to the farm buildings and homesteads and that the levees would not be planned to protect agricultural land from flooding. It is also expected that construction would make use of any natural levees and high ground where available.

4.00 STUDY AREA

4.01 The study area for this cultural resource investigation comprises the areas of Walsh and Pembina Counties, North Dakota, that include the 310 farmsteads being considered for flood control protection by ring levees. These farmsteads are shown on the inclosed maps.

5.00 STUDY SPECIFICATIONS

5.01 The cultural resource investigation will focus on the study area as described in paragraph 4.01 above. The Contractor's study shall consist of the following tasks:

- a. Development of a research design to include development of a probability sample.
- b. A Phase I cultural resource survey based on the above sampling design.
- c. Development of a predictive model for site location.
- d. Preparation of a detailed technical report.

5.02 The objective of the investigation is the development of a predictive model that can be used by the Corps during project planning to determine the need for further surveys, and the impact to cultural resources from the construction of farmstead ring levees in the Red River of the North floodplain.

6.00 PROBABILITY SAMPLING

6.01 A Phase I cultural resource survey will be undertaken at 15 percent of the 310 farmsteads included in the study area outlined in paragraph 4.01.

6.02 The farmsteads selected for inclusion in the survey will be determined through a statistically valid probability sampling design that will be developed by the Contractor. This design will allow the Corps to make predictive statements regarding site potential based upon distance from the Red River of the North and/or any other predictive factors. It is suggested that some type of stratified random sample be employed, but the actual type of sampling used is up to the discretion of the Contractor.

6.03 Surveys conducted by Dr. Mike Miclovic of Moorhead State along the Red River of the North in Norman County, Minnesota, have shown that archaeological sites are usually located within the oxbows of the river and rarely more than one-quarter mile from the river. This correlation might also exist in the present study area, and the Contractor should consider this point during formulation of the research design.

6.04 The study research design and sampling strategy shall be submitted to the Contracting Officer for review and approval prior to implementation to assure that the Contractor's investigation will fulfill study goals.

7.00 GENERAL PERFORMANCE SPECIFICATIONS

7.01 The Contractor will utilize a systematic, interdisciplinary approach in conducting the study. The Contractor will provide specialized knowledge and skills during the course of the study to include expertise in archeology and in other social and natural sciences as required.

7.02 The extent and character of the work to be accomplished by the Contractor will be subject to the general supervision, direction, control, review and approval of the Contracting Officer.

7.03 Techniques and methodologies that the Contractor uses during the investigation shall be representative of the current state of knowledge for their respective disciplines.

7.04 The Contractor shall keep standard records which shall include, but not be limited to, field notebooks, site survey forms, field maps, and photographs. The original and one copy of these records shall be made available to the Contracting Officer upon request.

7.05 The recommended professional treatment of recovered materials is curation and storage of the artifacts at an institution that can properly insure their preservation and that will make them available for research and public view. If such materials are not in Federal ownership, the consent of the owner must be obtained, in accordance with applicable law, concerning the disposition of the materials after completion of the report. The Contractor will be responsible for making curatorial arrangements for any collections which are obtained. Such arrangements must be coordinated with the appropriate officials of North Dakota and approved by the Contracting Officer.

7.06 The Contractor shall provide all materials and equipment as may be necessary to expeditiously perform those services required of the study.

7.07 Should it become necessary in the performance of the work and services, the Contractor shall, at no cost to the Government, secure the rights of ingress and egress on properties not owned or controlled by the Government. The Contractor shall secure the consent of the owner, his representative, or his agent, in writing prior to effecting entry on such property. If requested, a letter of introduction, signed by the District Engineer, can be provided to explain the project purposes and request the cooperation of landowners. Where a landowner denies permission for survey, the Contractor shall immediately notify the Contracting Officer and shall describe the extent of the property to be excluded from the survey.

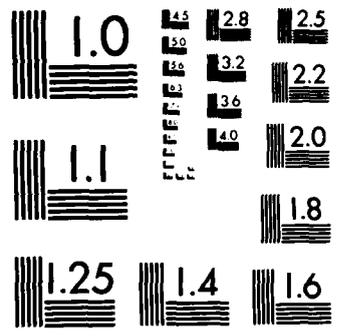
7.08 The recommended survey grid or transect interval is 15 meters (50 feet), and the testing interval is 15 meters (50 feet). However, this interval may vary depending upon field or site density/size conditions. If the recommended interval is not used, the Contractor must present written justification for selection of an alternate interval. All subsurface tests will be screened through 1/4-inch mesh hardware cloth and will be recorded on appropriate testing forms. All subsurface testing forms will be included in the appendix to the Contractor's report. The Contractor will also indicate the locations of all subsurface tests on USGS and/or project maps and key these with the testing forms in the appendix.

7.09 The Contractor will shovel-test any located sites sufficiently to determine the existence of cultural materials and/or features, their condition (in situ or disturbed), the horizontal and vertical distribution of the remains, and, if possible, the cultural affiliation of the site(s).

7.10 The surveyed areas will be returned as closely as practical to pre-survey conditions by the Contractor.

8.00 GENERAL REPORT REQUIREMENTS

8.01 The Contractor will submit three types of reports: field report, monthly progress reports, and draft and final technical reports.



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

8.02 The monthly progress report will be a brief report submitted with each monthly invoice. Information provided in these reports will describe the status of the study, the work accomplished during the monthly billing period, and any noteworthy information such as problems that may have developed.

8.03 The Contractor's technical report must include, but shall not necessarily be limited to, the following information:

a. Title Page: Note the type of investigation undertaken, the cultural resources assessed (archaeological, historical, and architectural), the project name and location (county and State), the date of the report, the Contractor's name, the contract number, the name of the author(s) and/or Principal Investigator, the signature of the Principal Investigator, and the agency for which the report is being prepared.

b. Abstract: An abstract of findings, conclusions, and recommendations. This should not be an annotation.

c. Management Summary: Concisely summarize the study, which will contain all essential data for using the document in the Corps' management of the project. This information will minimally include who the sponsor is and why the work was undertaken, a summary of the study, study limitations, study results, significance, recommendations, and identification of the repository of all pertinent records and artifacts.

d. Table of Contents.

e. List of Figures.

f. List of Plates.

g. Introduction: This section shall identify the sponsor (Corps of Engineers) and the sponsor's reason for the study; an overview of the project, with the site(s) located on USGS quad maps. This section should also provide an overview of the cultural resource study to be undertaken; define the location and boundaries of the study area (with regional and area-specific maps); define the study area within its cultural, regional, and environmental context; reference the scope of work; identify the institute that did the work, the number of people involved in the study, and the number of person-days/hours utilized during the study; identify the dates when the various types of work were completed; identify the repository of records and artifacts; and provide a brief overview or outline of how the study report will proceed and an overview of the major goals that the study/study report will accomplish.

h. Theoretical and Methodological Overview: Describe or state the goals of the Corps and the study researcher, the theoretical and methodological orientation of the study, and the research strategies applied to achieve the stated goals.

i. Field Methods: Describe specific archaeological, historical, and architectural activities undertaken to achieve the stated theoretical and methodological goals. Include all field methods, techniques, strategies, and rationale or justification for specific methods or decisions. The description of the field methods shall minimally include: a description of the areas surveyed, survey conditions, topographic/physiographic features, vegetation conditions, soil types, informal testing, stratigraphy results, survey limitations, survey testing results with all appropriate testing forms to be included as an appendix (e.g., shovel tests, coring, cut bank profiles, etc.), degree of surface visibility, whether or not the survey resulted in the location of any cultural resources, the methods used to survey the area (pedestrian reconnaissance, subsurface test, etc.), the justification and rationale for eliminating uninvestigated areas, and the grid or transect interval used. Testing methods shall include descriptions of test units (size, intervals, stratigraphy, depth) and the rationale behind their placement.

j. Investigation Results: This section will describe all the cultural resources encountered during the study, and any other data pertinent to a complete understanding of the resources within the study area. This section shall include enough empirical data that the study results can be independently assessed. The description of the data shall minimally include: a description of the site; amounts and type of material remains recovered; relation of the site or sites to physiographic features, vegetation and soil types; direct and indirect impacts to the site(s); analysis of the site and data (e.g., site type, cultural historical components and information, cultural/behavioral inferences or patterns); site condition; and location and size information (elevation, complete quad map source, legal description, address if appropriate, and site size, density, depth, and extent). The information shall be presented in a manner that can be used easily and efficiently by the Corps.

k. Data Analysis: Describe and provide the rationale for the specific analytic methods and techniques used, and describe and discuss the qualitative and quantitative manipulation of the data. Limitations or problems with the analysis based on the data collection results will also be discussed. This section shall also contain references to accession numbers used for all collections, photographs, and field notes obtained during the study, and the location where they are permanently housed. All diagnostic artifacts will be illustrated or photographed and included in the report.

l. Predictive Model: Based upon the results of the survey, describe the predictive model which was developed for the study. The predictive model may include information relating to site size, site density, site types, cultural affiliations, cultural-behavioral patterns, etc. Discuss the limitations and reliability of the predictive model for its use in future surveys. The predictive model should attempt to make specific statements about cultural-environmental correlations. Gross generalizations should be avoided.

m. Evaluation and Conclusions: This section should evaluate and formulate conclusions concerning location of the site(s); size, condition, distribution, and density in relation to other sites in the area; and significance in relation to the local and regional prehistory, protohistory, and history. This section shall also discuss the potential and goals for future research; the reliability of the analysis; relate results of the study and analysis to the stated study goals; identify changes, if any, in the research goals, synthesize and compare the results of the analysis and study; integrate ancillary data; and identify and discuss cultural/behavioral patterns and processes that are inferred from the study and analysis results.

n. Recommendations: This section shall discuss the significance of the site(s) in relation to the research goals of the study and the National Register of Historic Places criteria, make recommendations as to the eligibility of the site(s) to the National Register; recommend future intensive testing or mitigative priorities and needs; and make suggestions with regard to the Corps of Engineers planning goals. These recommendations shall include a time and cost estimate for mitigation, if necessary. If it is the Contractor's assessment that the site(s) is (are) not significant, the methods of investigation and reasoning which support that conclusion will be presented. Any evidence of cultural resources or materials which have been previously disturbed or destroyed will be presented and explained.

o. References: This section shall provide standard bibliographic references in American Antiquity format.

p. Appendix: This section shall include the Scope of Work; resumes of all personnel involved; all correspondence derived from the study; all State site forms; all testing and any other pertinent report information referenced in the text as being included in the appendix.

8.04 The location of all sites and other features discussed in the text will be shown on a legibly photocopied USGS map and will be bound into the report. All maps will be labeled with a caption/description, a north arrow, a scale bar, township, range, map size, and dates, and the map source (e.g., the USGS quad name or published source) and will have proper margins.

8.05 Failure to fulfill these report requirements will result in the rejection of the report by the Contracting Officer.

9.00 FORMAT SPECIFICATIONS

9.01 The Contractor shall submit to the Contracting Officer the photographic negatives for all black and white photographs which appear in the final report.

9.02 All text materials will be typed, single-spaced (the draft reports should be space-and-one-half or double-spaced), on good quality bond paper, 8.5 inches by 11.0 inches, with 1.5-inch binding and bottom margins, and 1-inch margins on the top and other margin, and will be printed on both sides of the paper.

9.03 Information will be presented in textual, tabular, and graphic forms, whichever are most appropriate, effective, or advantageous to communicate the necessary information.

9.04 All figures and maps must be clear, legible, self-explanatory, and of sufficiently high quality to be readily reproducible by standard xerographic equipment, and will have margins as defined above.

9.05 The final report cover letter shall include a budget of the project.

9.06 The draft and final reports will be divided into easily discernible chapters, with appropriate page separation and heading.

10.00 SUBMITTALS

10.01 The Contractor will submit reports according to the following schedules:

a. Field Report: The original and one copy of a field report will be submitted after completion of the field work. The field report will summarize the work, project/field limitations, methodology used, time utilized, and survey results.

b. Progress Reports: On the first of each month during the term of this contract, the Contractor will submit to the Contracting Officer a brief progress report outlining the work accomplished that month and any problems or needs that require the attention of the Corps.

c. Draft Contract Report: The original and 10 copies of the draft contract report will be submitted on or before _____ days after contract award. The draft contract report will be reviewed by the Corps of Engineers, the State Historic Preservation Officer, the State Archeologist, and the National Park Service. The draft contract report will be submitted according to the report and contract specifications outlined in this Scope of Work.

d. Final Contract Report: The original and 15 copies of the final contract report will be submitted _____ days after the Corps of Engineers comments on the draft contract report are received by the Contractor. The final contract report will incorporate all the comments made on the draft contract report.

10.02 Neither the Contractor nor his representative shall release any sketch, photograph, report, or other material of any nature obtained or prepared under the contract without specific written approval of the Contracting Officer prior to the acceptance of the final report by the Government. After the Contracting Officer has accepted the final report, distribution will not be restricted by either party except that data relating to the specific location of extant sites will be deleted in distributions to the public.

11.00 METHOD OF PAYMENT

11.01 Requests for partial payment under this fixed price contract shall be made monthly on ENG Form 93. A 10-percent retained percentage will be withheld from each partial payment. Upon approval of the final reports by the Contracting Officer, final payment, including previously retained percentage, shall be made.

The University of South Dakota Archaeology Laboratory has an excellent staff selected to conduct the necessary work on this project. The attachments are the qualifications of the Archaeology Laboratory and key personnel.

Vita

Kenneth L. Brown

DATE AND PLACE OF BIRTH

November 10, 1951, Liberty, Missouri

MARITAL STATUS

Married, 1980, Marie E. Klon

CHILDREN

Jennifer M. Brown, April 14, 1981

OFFICE ADDRESS

Archaeology Laboratory, University of South Dakota, Vermillion, South Dakota, 57069. Phone: 605-677-5401

HOME ADDRESS

414 N. Plum, Vermillion, South Dakota, 57069. Phone: 605-624-6416

EDUCATION

1980 M. Phil. Anthropology, University of Kansas

1977 M.A. Anthropology, University of Kansas

1974 B.A. Anthropology (with honors) and Sociology, University of Kansas

1972 A.A. Kansas City Metropolitan Junior College

1970 Liberty High School, Liberty, Missouri

ARCHAEOLOGICAL EXPERIENCE

1981-1983 Principal Investigator, University of South Dakota, for contracts awarded: Red River of the North Ring Levees survey, Pembina and Walsh Counties, N.D.; Lake Traverse survey, S.D. and Minn.; Cultural resources survey along the Pembina River, N.D.; Upper Minnesota River Project, northeastern S.D. and southwestern Minn.; and many small contracts.

1982 Principal Investigator, (May - June) Test excavations of four sites in the proposed Lonetree Reservoir, North Dakota.

- 1982 Principal Investigator, Dakota Interactive Services, Inc. (May - June) Survey of prehistoric and historic sites around Jamestown Reservoir, North Dakota.
- 1981 Principal Investigator, Dakota Interactive Services, Inc. (August - October). Survey of prehistoric and historic sites in Waubay National Wildlife Refuge, South Dakota.
- 1980 Archaeological Field Mapper, Luther College, (October), the mapping of the Blood Run site, Northwestern Iowa.
- 1980 Archaeological Field Supervisor, University of South Dakota, (June-August), the survey and testing of prehistoric sites in Brushy Creek State Park, Iowa.
- 1979 Archaeological Field Assistant, University of Kansas, (July-August), in the El Dorado Lake Project, Southeastern Kansas. Testing and excavating historic sites.
- 1978 Archaeological Field Supervisor, University of Kansas, (June-August), in Kansas City, Missouri. Excavating Late Archaic and Late Woodland sites along the Little Blue River.
- 1976 Archaeological Survey Supervisor, University of Kansas, (June-August), in Kansas City, Missouri. Testing Late Archaic to Mississippian sites along the Little Blue River.
- 1975 Archaeological Survey Supervisor, University of Kansas, (June-August), in the Cimarron National Grassland, Southwestern Kansas.
- 1975 Archaeological Survey Assistant, University of Kansas, (April-May), Little Blue River, Kansas City, Missouri.
- 1975 Archaeological Surveyor, University of Kansas, (January), Cimarron National Grassland, Southwestern Kansas.
- 1974 Archaeological Survey Assistant, University of Kansas (August), in Anderson and Linn Counties, Southeastern Kansas.
- 1974 Archaeological Field Laboratory Assistant, University of Kansas, (June-August), Coffey Site, Manhattan, Kansas. A Middle Plains Archaic and Late Archaic hunting and gathering camp.
- 1973 Excavator, Kansas Archaeological Field School (June-August), in Kansas City, Missouri. A Kansas City Hopewell village and Steed-Kisker burial mound.

ORGANIZATIONS

Society for American Archaeology
Plains Anthropological Association
South Dakota Archaeological Society
North Dakota Archaeological Association
Minnesota Archaeological Society
Minnesota Historical Society
Lambda Alpha

Graduate Student President, Graduate Student Colloquium in Anthropology, University of Kansas, September, 1976 - September, 1977.
September, 1978 - September, 1979.

Graduate Student Vice-President, Graduate Student Colloquium in Anthropology, University of Kansas, January, 1976 - September, 1976.

Graduate Student Representative, Graduate Student Colloquium in Anthropology, University of Kansas, September, 1974 - September, 1977.

PAPER PRESENTATIONS

- 1975 33rd Plains Conference, Lincoln, Nebraska. "An Archaeological Survey of the Cimarron National Grassland, Southwestern Kansas."
- 1977 35th Plains Conference, Lincoln, Nebraska. "Late Prehistoric Settlement Patterns in Southwestern Kansas."
- 1978 36th Plains Conference, Denver, Colorado. "Archaeological Excavations at the Seven Acres Site, 23JA115, Jackson County, Missouri."
- 1979 37th Plains Conference, Kansas City, Missouri. "A New Archaeological Complex in the Kansas City Locality: the Maybrook Phase."
- 1983 5th Annual Flint Hills/Osage Hills Conference, Topeka, Kansas. "Absolute Chronology for the Pomona Focus and Associated Complexes: The Radiocarbon Evidence."

PUBLICATIONS (articles)

- 1976 A Search for Patterns in the Horizontal and Vertical Distribution of Artifacts in the Kansas City Hopewell Component at the Young Site, (23PL4). University of Kansas, Publications in Anthropology 8, A.E. Johnson, (ed.). Lawrence.
- 1977 (with Mary Adair). Prehistoric Cultural Resources in Kansas: Some Problem Areas. Kansas Anthropological Association Newsletter 22(9).
- 1979 Late Prehistoric Settlement Patterns in Southwestern Kansas. Plains Anthropologist 24(85):191-206.

- 1981 (with Robert Ziegler). Nebo Hill Settlement Patterns in North-western Missouri. Missouri Archaeologist, 42:43-55.
- 1982 (with Marie E. Brown and Ned H. Hanenberger). Prehistoric Stone Tools of South Dakota: A Guide. South Dakota Archaeological Society, Special Publication, No. 6. Vermillion.

CONTRACT ARCHAEOLOGY PUBLICATIONS

- 1974 (With David Evans and Marc Rucker). An Appraisal of the Archaeological Resources of the Big Sugar Creek Watershed, Anderson and Linn Counties, Kansas. Report submitted to the National Park Service.
- 1975 An Appraisal of Archaeological Resources Along the Right-of-Way of a Proposed Road North of the Cimarron River in the Eighty-One Pasture of the Cimarron National Grassland District of the San Isabel National Forest. Report submitted to the U.S. Department of Agriculture, Forest Service.
- 1976 Prehistoric Cultural Resources of the Cimarron National Grassland, Morton and Stevens Counties, Kansas. Report submitted to the U.S. Department of Agriculture, Forest Service.
- 1976 (with Mark Baumler). Little Blue River Channel-Modification Project, Archaeological Research Design. Report submitted to the U.S. Army Corps of Engineers, Kansas City District.
- 1977 (With Byron Dixon, Rebecca Filer, Dankers Lauderdale, Patricia Miller, Curtis Sorenson, and Robert Ziegler). Historic and Prehistoric Cultural Resources in the Longview and Blue Springs Lakes, Jackson County, Missouri. Report submitted to the U.S. Army Corps of Engineers, Kansas City District.
- 1978 Evaluations and Recommendations for the Historical, Architectural and Paleontological Resources at Blue Springs and Longview Lakes, Jackson County, Missouri. (Supplement to the volume: Historic and Prehistoric Cultural Resources of the Blue Springs and Longview Lakes, Jackson County, Missouri). Report submitted to the U.S. Army Corps of Engineers, Kansas City District.
- 1979 (with Byron Dixon and Susan Richards). Historic and Prehistoric Cultural Resources Along the Proposed Channel of West Fire Prairie Creek, Jackson County, Missouri. Report submitted to the U.S. Army Corps of Engineers, Kansas City District.
- 1981 (with Robert Ziegler, assemblers). Prehistoric Cultural Resources Within the Right-of-Way of the Proposed Little Blue River Channel, Jackson County, Missouri. Report submitted to the U.S. Army Corps of Engineers, Kansas City District.

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- 1982 (with other authors). Cultural Resources Along the South Dakota Segment of the Northern Border Pipeline. Report submitted to the Northern Border Natural Gas Company, Omaha.
- 1982 (with Marie Brown and Karen Zimmerman). Archaeological and Historical Reconnaissance and Literature Search of Cultural Resources within the Pembina River Project, Pembina and Cavalier Counties, North Dakota. Report submitted to the U.S. Army Corps of Engineers, St. Paul District.
- 1982 (with Marie Brown and Karen Zimmerman). Prehistoric and Historic Resources within the Jamestown Reservoir Project. Report submitted to the Bureau of Reclamation.
- 1982 A Cultural Resources Survey of the Fort Yates Irrigation Project, Sioux County, North Dakota. Report submitted to the Bureau of Indian Affairs.
- 1982 A Cultural Resources Survey of the Shenandoah, Iowa, Airport Expansion Project. Report submitted to H. Gene McKeown and Associates, Inc.
- 1982 A Cultural Resources Survey of Wastewater Collection and Treatment Facilities At Lake Madison, Lake County, South Dakota. Report submitted to the Lake Madison Sanitary District and Schmitz, Kalda & Associates.
- 1982 (with Marie Brown and Karen Zimmerman). A Cultural Resources Survey of the Upper Minnesota River. Report submitted to the St. Paul District, U.S. Army Corps of Engineers.
- 1982 (with Marie Brown). Test Excavations of Four Sites in the Proposed Lonetree Dam and Dikes and New Rockford Canal, Wells County, North Dakota. Report submitted to the Bureau of Reclamation.
- 1982 A Cultural Resources Survey of the Proposed Indian Health Service Hospital, Rosebud, South Dakota. Report submitted to the Indian Health Service, Aberdeen, South Dakota.
- 1982 (Dale Henning, Principal Investigator)
Evaluative Investigations of Three Landmark Sites in Northwest Iowa. Luther College Archaeological Research Center, Decorah, Iowa.

- 1983 A Cultural Resources Survey of the Proposed Indian Health Service Facility, Fort Thompson, South Dakota. Report submitted to the Indian Health Service, Aberdeen, South Dakota.
- 1983 (with Marie Brown). A Cultural Resources Survey of the Lower Brule Sioux Tribal Farm Irrigation Development Project #05-01-02084, Stanley County, South Dakota. Report submitted to the Lower Brule Sioux Tribe.
- 1983 (with Marie Brown). Test Excavations at Site 13WD405, Woodbury County, Northwestern Iowa. Report submitted to the Office of the State Archaeologist of Iowa.
- 1983 (with Marie Brown). Cultural Resource Investigations of the Walhalla Alcohol Fuel Plant Facility, Pembina County, North Dakota. Report submitted to City of Walhalla and Red River Regional Planning Council, Grafton, N.D.
- 1983 (with Marie Brown). A Cultural Resources Survey of Three Timber Harvest Areas Within the Rosebud Timber Reserve, Todd County, South Dakota. Report submitted to Bureau of Indian Affairs, Aberdeen, S.D. and Rosebud Sioux Tribe.
- 1983 (with Marie Brown and Barbara Biggs). Cultural Resources Investigations at the Lake Traverse-Bois de Sioux Project, Roberts County, South Dakota, Traverse County, Minnesota. Report submitted to the St. Paul District, U.S. Army Corps of Engineers.
- 1983 (with Marie Brown and Barbara Biggs). Phase I Archaeological and Historical Resources Investigations for the Red River of the North Ring Levee Project, Pembina and Walsh Counties, North Dakota. Report submitted to the St. Paul District, U.S. Army Corps of Engineers.

TEACHING EXPERIENCE

- 1981 Fall, Instructor, University of South Dakota, Introduction to Physical Anthropology, Anthropology 220.
- 1980 Spring, Instructor, University of Kansas, North American Archaeology, Anthropology 504.
- 1979 Fall, Instructor, University of Kansas, Introduction to Physical Anthropology, Anthropology 304.
- 1979 (Spring) and 1978 (Fall), Instructor (with Robert Ziegler). An Invitation to Great Plains Archaeology. A six week adult class sponsored by Museums Associates, Museum of Natural History, University of Kansas.

PRESENT PROFESSIONAL POSITIONS

Director, University of South Dakota Archaeology Laboratory (fall 1982 to present).

Principal Investigator of Contract Archaeology, University of South Dakota Archaeology Laboratory (fall 1980 to present).

PROFESSIONAL INTERESTS AND EXPERTISE

North American Indians, Archaeology of the Plains and Eastern United States, Settlement Patterns, Cultural Ecology, Lithic Technology, Lithic Use-Wear Analysis, Ceramic Analysis, Computer Applications to Archaeological Problems.

REFERENCES

Dr. Larry Zimmerman
Director, Anthropology Program
Department of Social Behavior
University of South Dakota
Vermillion, South Dakota 57069
605-677-5401

Dr. Alfred E. Johnson
Director, Museum of Anthropology
University of Kansas
Lawrence, Kansas 66045
913-864-4245

Dr. Dale Henning
Department of Anthropology
Luther College
Decorah, Iowa 52101
319-387-1283

Vita

Marie E. Brown

DATE AND PLACE OF BIRTH

October 10, 1950, Milwaukee, Wisconsin

MARITAL STATUS

Married, 1980, Kenneth L. Brown

CHILDREN

Jennifer M. Brown, April 14, 1981

OFFICE ADDRESS

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EDUCATION

1982 M.A. Anthropology, University of Kansas

1972 B.A. Anthropology, Marquette University

1968 Our Lady of Mercy High School, Milwaukee, Wisconsin

ARCHAEOLOGICAL FIELD EXPERIENCE

1982 Archaeological Field Director. Test Excavations of four sites in the proposed Lonetree Reservoir, North Dakota.

1982- Archaeological Field Assistant, University of South Dakota.

1983 Survey at: Red River Ring Levee Project, Pembina and Walsh Counties, North Dakota; Lake Traverse, South Dakota; Upper Minnesota River, South Dakota and Minnesota; Lake Madison, South Dakota; Shenandoah, Iowa; Ft. Yates, North Dakota; Test excavations at site 13WD405, Sioux City, Iowa; Survey of Indian Health Service Hospitals, Rosebud and Fort Thompson, S.D.; Survey of Clarke Ranch, Lower Brule, S.D.; Survey of Timber Harvest Areas, Rosebud, S.D.

1982 Archaeological Field Assistant, Dakota Interactive Services, Inc. Survey of prehistoric and historic sites around Jamestown Reservoir, North Dakota.

1981 Archaeological Field Assistant, University of South Dakota. Survey of prehistoric and historic sites along Pembina River, North Dakota.

- 1980 Archaeological Field Mapper, Luther College. The Mapping of the Blood Run Site, Northwestern Iowa.
- 1980 Archaeological Field Supervisor, University of South Dakota. Surveying and testing of prehistoric sites in Brushy Creek State Park, Iowa.
- 1979 Archaeological Field Assistant, El Dorado Lake, Kansas. Excavated a Woodland site.
- 1979 Excavator, Little Blue River Project, Kansas City Missouri. Tested an Early Woodland site.
- 1978 Archaeological Field Assistant, El Dorado, Kansas. Excavated a Woodland site.
- 1978 Field Assistant, Cultural Resource Reconnaissance, Missouri State Highway Commission.
- 1975 Archaeological Field Foreman, Chief Joseph Reservoir Archaeological Research Project, Washington. Tested prehistoric sites.
- 1974 Assistant Field Foreman, Alpowa Project, Washington. Excavated a prehistoric site assigned to the Harder Phase.
- 1973 Archaeological excavator, Alpowa Project, Washington. Excavated a prehistoric site assigned to the Harder Phase.
- 1972 Excavator, Washington State University Field School, Alpowa Project, Washington. Excavated a site assigned to the Harder Phase.
- 1971 Excavator, Sacramento State College Field School, Samwell Cave, California. Excavated a Paleo-Indian site.

ARCHAEOLOGICAL LABORATORY EXPERIENCE

- 1982, Fall to Present, Supervisor, The University of South Dakota Archaeology Laboratory.
- 1980- Research Associate, University of South Dakota. Analysis of 1982 artifacts from: Pembina River, North Dakota; Northern Border Natural Gas Pipeline, South Dakota, Upper Minnesota River, South Dakota and Minnesota, and numerous small projects.
- 1979- Research Assistant, Analysis of cultural material from 14BU57, 1980 El Dorado Lake, Kansas.
- 1978- Research Assistant, Analysis of lithics, ceramics and faunal 1979 remains from 14BU55, El Dorado Lake, Kansas.

- 1977 Laboratory Assistant, cataloging artifacts from the El Dorado Lake Project, Kansas.
- 1975 Laboratory Assistant, cleaning and cataloging artifacts from the Chief Joseph Reservoir Research Project, Washington.
- 1975 Laboratory Assistant, preliminary analysis of utilized flakes from the Alpowa Project, Washington.

RESEARCH INTERESTS AND EXPERTISE

Plains and Plateau Archaeology, Faunal Analysis, Bone Tool Technology and Wear Patterns, Cultural Ecology and Subsistence Patterns.

PROFESSIONAL SOCIETIES

Society for American Archaeology
 Plains Anthropological Association
 South Dakota Archaeological Society
 North Dakota Archaeological Association
 Minnesota Archaeological Society
 Minnesota Historical Society
 Lambda Alpha

PAPER PRESENTATIONS

- 1979 First Flint Hills/Osage Hills Conference, Norman, Oklahoma. "Plains Village Manifestations in the El Dorado Reservoir, Kansas."

PUBLICATIONS (articles)

- 1982 (with Kenneth Brown and Ned H. Hanenberger). Prehistoric Stone Tools of South Dakota: A Guide. South Dakota Archaeological Society, Special Publication, No. 6. Vermillion.
- 1979 An Analysis of the Smoky Hill Subsistence Pattern. In Kansas Working Papers in Anthropology, Vol. 4, University of Kansas, Lawrence.

CONTRACT ARCHAEOLOGY PUBLICATIONS

- 1981 (with M.J. Adair). The Two Deer Site (14BU55): A Plains Woodland-Plains Village Transition. In Phase II Investigations of Prehistoric and Historic Cultural Resources in El Dorado Lake, Kansas. Ed. by M.J. Adair. Report submitted to the U.S. Army Corps of Engineers, Tulsa District.
- 1982 Site 14BU57. In Archaeological Investigation at El Dorado Lake, Butler County, Kansas (Phase III). Assembled by P.E. Brockington, Jr. Report submitted to the U. S. Army Corps of Engineers, Tulsa District.

- 1982 (with other authors) Cultural Resources Along the South Dakota Segment of the Northern Border Pipeline. Report submitted to the Northern Border Natural Gas Company, Omaha.
- 1982 (with Kenneth Brown and Karen Zimmerman) Archaeological and Historical Reconnaissance and Literature Search of Cultural Resources Within the Pembina River Project, Pembina and Cavalier Counties, North Dakota. Report submitted to the U.S. Army Corps of Engineers, St. Paul District.
- 1982 (with Kenneth Brown and Karen Zimmerman) Prehistoric and Historic Resources Within the Jamestown Reservoir Project, North Dakota. Report submitted to the Bureau of Reclamation.
- 1982 (with Kenneth Brown and Karen Zimmerman) A Cultural Resources Survey of the Upper Minnesota River. Report submitted to the U.S. Army Corps of Engineers, St. Paul District.
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- 1982 (Dale Henning, Principal Investigator) Evaluative Investigations of Three Landmark Sites in Northwest Iowa. Luther College Archaeological Research Center, Decorah, Iowa.
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- 1983 (with Kenneth Brown) A Cultural Resources Survey of the Lower Brule Sioux Tribal Farm Irrigation Development Project #05-01-02084, Stanley County, South Dakota. Report submitted to the Lower Brule Sioux Tribe.
- 1983 (with Kenneth Brown) Cultural Resource Investigations of the Walhalla Alcohol Fuel Plant Facility, Pembina County, North Dakota. Report submitted to City of Walhalla and Red River Regional Planning Council, Grafton, N.D.
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1983 (with Kenneth Brown and Barbara Biggs) Phase I Archaeological and Historical Resource Investigations for the Red River of the North Ring Levee Project, Pembina and Walsh Counties, North Dakota. Report submitted to the St. Paul District, U.S. Army Corps of Engineers.

PROFESSIONAL POSITIONS

Supervisor, The University of South Dakota Archaeology Laboratory (Fall 1982 to Present).

REFERENCES

Dr. Larry Zimmerman
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Education:

University of Minnesota
Graduate School
Presently attending

University of South Dakota
Master of Public Administration
Degree conferred July 1981

Black Hills State College
B.S. - Dbl. Mjr., Pol. Sci./Mass Comm.
Degree conferred August 1979

Work Experience:

Planner July 1982 - August 1982
Siouxland Interstate Metropolitan Planning Council
601 Insurance Exchange Building
Sioux City, IA 51101

Prepared a successful grant application to establish a loan fund for South Sioux City businesses experiencing economic hardship due to the closing of the Siouxland Veterans Memorial Bridge. Performed a land use survey of the northern half of the city. Designed a revolving loan fund. Prepared a proposal for the city council. Wrote notices and updates for newspapers and newsletters.

Research Associate July 1981 - November 1981
Institute of Indian Studies
University of South Dakota
Vermillion, SD 57069

Worked under contract from the Bureau of Indian Affairs through the University of South Dakota researching the taxation of Indian trust lands on the Omaha and Winnebago Reservations. Reviewed personal Indian files. Abstracted and indexed land titles. Located, recorded and tabulated tax records from 1910 to 1970.

Census Taker April 1-21, 1980
Bureau of the Census
Vermillion, SD 57069

Responsible for canvassing neighborhoods. Gathered surveys and conducted interviews for the '80 Census.

Graduate Assistantships:

Research Assistant August 1980 - June 1981
Governmental Research Bureau
University of South Dakota

Updated 1975 publication South Dakota Facts. Researched and gathered statistics. Recorded information.

Graduate Assistant March 1981 - June 1981
Allied Health Services
University of South Dakota

Developed computer library for health books and publications relevant to the program. Researched the nursing shortage. Prepared a statistical profile of South Dakota medical students and residents.

Research Assistant August 1979 - May 1980
Governmental Research Bureau
University of South Dakota

Worked on Social Indicators: Quality of Life Research, a computer bank for recording indicators of the quality of life in South Dakota. Researched and gathered statistics. Recorded information.

References Available Upon Request

APPENDIX C
Field Notes

Thursday - May 12, 1983

(Ken and Marie Brown), We left Vermillion and headed for Drayton, ND at 11:30 am. It was raining when we left. The rain stopped by the time we reached Watertown and it was partly cloudy for the rest of the trip. We arrived in Drayton at 9:00 pm. Our historian was waiting for us there. She (Barbara Biggs) has spent the earlier part of the week in Bismarck and Grafton. We consulted her on her findings so far.

Friday - May 13, 1983

It was partly cloudy, windy, and cold this morning. We headed for Pembina, the north end of the project area, at 9:30 am.

Mrs. Violet Warner (Farmstead #35), RR 1, Box 4, Pembina, N.D. 58271

The Warners live on part of old Fort Pembina. Moved onto the land in 1939. Government sold off land in 40 acre tracts. They lived in officers' quarters until 1956. They started building a new house in 1955 and moved into it in 1956. When they found no public interest in preserving the single remaining officers' quarters, it was dismantled in 1956. Husband's name is Alvin. An old cistern was hit when they were digging the basement for their new house. There used to be 4 officers' quarters buildings. They have found cartridges. There was a mound in the field north. It contained about 8 Indian skeletons (1967). Projectile points and grooved mauls have been in the fields. There were big floods in 1950 and 1979.

Chief Shalamoe? On a local farmer's place, Pemmican found 1 mile west of Adolard C. DeFoe. 2 miles east: people used to tap boxelder trees for syrup. He has found some grooved mauls. 1906 or 1907 Indians came in winter and cut some wood for his granddad. Camped in timber along river by his place. Grandfather came in 1876.

We ate lunch in Pembina. The afternoon was cloudy, cold, and windy.

Farmstead # 22A (owned by George Bordeniuk; House is unoccupied)- It is situated on the right bank (south side) of the Pembina River and is

surrounded by woods and a cultivated field. Survey did not yield cultural material. Ground visibility as 100% in the field and 0% in the woods.

Farmstead # 22 (owned by Chuck DeFoe)-

It is situated on the left bank (north side) of the Pembina River and is surrounded by woods. Plowed furrows are present inside the tree line. These were surveyed as well as an extensive cut bank and surrounding dirt farm road. Ground visibility ranged from 0 to 100%. The survey did not yield cultural material. The owner has not found any Indian material on his farmstead.

Farmstead #42 (owned by Nick Zaharia)-

It is situated on the north bank of Loudon Coulee, known locally as auger coulee and is surrounded by cultivated fields and woods. Ground visibility ranged from 0 to 100%. The survey did not yield cultural material. The owner has not found any Indian material on his farmstead.

Farmstead #24 (owned by Steve Meagher, abandoned)-

It is situated on the right bank (south side) of the Pembina River, just west of the confluence of the Pembina and Tongue Rivers. It is surrounded by a cultivated field. Ground visibility was 100%. A single flake was recovered and historic material was scattered across the field. Several bottle necks were recovered.

Farmstead #33 (owned by holmquist, no house but a small barn and 3 small graineries)-

It is situated on the east edge of an old oxbow of the Pembina River. The surrounding field is cultivated right up to the buildings. Ground visibility was 100%. Historic material probably associated with the no longer existing, former farm house was observed and several bottle necks were recovered. Prehistoric cultural material (i.e. pottery and lithics) was recovered along the edge of the oxbow.

Farmstead #58 (owned by Percy Oakes; his son Richard, also has a house there)-

It is situated over a mile west of the Red River and is surrounded by a cultivated field. Ground visibility was 100%. The survey did not yield cultural material. Richard Oakes indicated that no Indian material was recovered around the farmstead, but Indian artifacts had been recovered from the cultivated field west of Farmstead #48, which consists of a log cabin. Although it is not part of our sample, we will check it out tomorrow. Richard invited us to dinner. We accepted.

All of the lands surveyed today were extremely muddy due to the recent rain. Luckily, we brought our rubber boots with us.

Saturday - May 14, 1983:

It was a cloudy, windy, cold day. We headed back to the north end of the project area. We stopped at Richard Oakes' house and dropped off Jenny (our daughter) while we survey several farmsteads in the area.

Farmstead #48 (currently being purchased by Richard Oakes and his cousin, a dentist in California)

This is the log cabin Richard told us about yesterday. The cabin is constructed of oak slab logs. The corners are dovetailed construction. The original cabin has two floors. A later, one story, clapboard addition is present on the east side. A front porch measures 8'x15'. The original log cabin measures 20 ft. x 15 ft. The entire structure, including the add-on but minus the porch, measures 20 ft. x 20 ft. A small, log ice house is located to the southeast. A small plaque was placed inside the log cabin, by the north window by the St. Paul District Corps of Engineers. It marks the water level of the 1979 flood which reached about a level of 4 ft. in the cabin. This cabin is in good condition (the log portion). It ought to be preserved before arsonists destroy it.

We check out the prehistoric site on the terrace $\frac{1}{4}$ mile west of the cabin. This is the site that Richard told us about yesterday. Ground visibility was 100%. Ceramics, including a Blackduck rim sherd, and lithics, including an endscraper were recovered.

Farmstead #60 (owned by Sam Kotchman; Diked)

We talked to Mr. Kotchman's daughter, Carol, first. She informed us that her brother had found some historic material in the vicinity, but she did not know where. She also told us to contact Mrs. Sweet and Mrs. Katerine Grube in Pembina about the Pembina Museum. (We stopped at the Pembina Museum yesterday, but it is closed until Memorial Day). Next, we talked to Sam Kotchman. He did not know of any Indian sites on his property. He did say that the house that had stood on Farmstead #60 was moved to Farmstead #62 (also owned by him) when he built a new house at #60. There used to be a ferry across the Red River, east of Joliette.

We surveyed the southern half first. Ground visibility was 100%. Lithics, including a large, retouched Knife River Flint flake, was recovered from the surface, along the edge of the terrace. No ceramics were observed or recovered. The site, designated USD-60S, is a thin lithic scatter.

We met Mr. Kotchman's son, Jim, just as we finished the south half. He informed us that he had found historic cultural material on the north side of the farmstead and he led us there. We found a spoon and several brick and glass fragments. Ground visibility was 100%. Jim said that, in the past, he has found a bayonet, spoon, square nails, and glass on the site which we designated as field number USD-60N. In addition to the historic material, a single chert flake was recovered. The site is located on the edge of a terrace of the Red River. We told Jim that we would return the spoon to him when we were finished analyzing it. It has a maker's mark.

Farmstead #62 (owned by Sam Kotchman)

This is where the house from #60 was moved. It is not inhabited. No one lives on the farmstead. Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead #64 (owned by Tom Middleton)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 70 (unknown owner, consists of a series of grain bins only)

Ground visibility was 100%. No cultural material was observed or recovered.

We returned to Richard Oake's place, picked up Jenny, and ate lunch in Pembina. Then we continued with the survey.

Farmstead #81 (owned by A.D. Dunckles; Gene and Ava Hiltner are tenants)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 87 (owned by Ted Passa; no house, used to be the site of a migrant labor house)

Ground visibility was 100%. No cultural material, except modern trash, was observed or recovered.

Farmstead #108 (owned by Alex Peil)

Fr. Peil has lived on the farm since 1917. He has not found any Indian artifacts around his farmstead. The 1979 flood was very damaging to some of his buildings and animals. He suggested that our historian contact Edythe Christenson concerning the early history of Bowesmont, Erwin Schumaker concerning the history of fur posts and Herb Stewart concerning the history of the Red River area. We will relay this information to Barb, our historian. Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead #123 (owned by Phillip Raney)

The owner's grandmother was the first white woman born in the township. He had found some prehistoric cultural material on his land prior to the 1979 flood. There used to be a house on the north side of the road but it has been taken down. Ground visibility was 100%. Except for scattered, modern (post 1900) cultural material where a house formerly stood, no cultural material was observed or recovered.

Farmstead #114 (abandoned)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead #133 (abandoned, no house)

Ground visibility was 100%. No cultural material was observed or recovered. The area had been recently bulldozed.

All of the lands surveyed today were very muddy.

Sunday- May 15, 1983:

It was a partly cloudy, windy, cool day.

Farmstead # 136 (owned by RAYmond E. Kneoff)

This farm is near the Red River trail. Mr. Kneoff said that the Joliette ferry closed in the early or mid-1940's. He also gave us the name of Blanche Charbonneau, a local collector who lives in Drayton. We will try to contact here later. We were also informed of a large bison kill site within a loop of the river east of the south end of Drayton. A search of our records indicated that this is site 32PB1.

Ground visibility was 100%. A few flakes and several small fragments of crushed granite tempered pottery were recovered from the surface on the north side of the Farmstead. The site is very thin.

Farmstead # 103 (owned by Domenic Stellan)

Mr. Stellan will be 81 this year. He came to the area in 1919. The present house was built in 1948. He and his family plan on building a dike this year. Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 101 (hilary Ebertowski is the tenant)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 129 (owned by Raymond VanCamp)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 141 (owned by Dale Pederson)

Mr. Pederson said that he had heard that a brick yard used to exist east of the Interstate and about a mile south of Drayton. We will have Barb check it out. Ground visibility was 100%. No cultural material was observed or recovered.

We ate lunch in Drayton. The rest of the survey area is in Walsh County.

Farmstead # 172 (owned by William J. Altendorf)

Mr. Altendorf is 82 years old. His father first homesteaded there in 1880 or 1882 and he died in 1924. He stated that the former dance hall and tavern from the former town of Acton were moved to a location directly east of I-29. This location is T157N, R51W, Sec. 23, SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$. The demise of Acton occurred about 50 years ago.

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 167 (owned by Allan Kirkeby; abandoned)

The owner, Mr. Kirkeby, said that he used to find Indian artifacts in the area when he was a boy. Most of his collection was lost while he was in the service, but he showed us the few artifacts that he still possesses.

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 178 (owned by Earl Schultz)

This is the former residence of Alfred (now deceased) and Louise Hoenke. It is now owned by Earl Schultz, their son-in-law. Mrs. Hoenke now lives in Grafton. The house used to be part of the Acton Post Office which used to be located east of the road, in the former town of Acton. The site of the town has never been plowed. Indian graves are said to be located

in the northwest corner of the former town, which is now a pasture. This information was supplied to us by Loren Schultz, the son of Earl Schultz.

Ground visibility was 100%. Some historic debris from the house occupation was observed but no cultural material was recovered. No prehistoric cultural material was observed or recovered.

Farmstead # 177 (a portion of the former town of Acton)

This is not part of our survey sample but it has historical significance for the area. The original school is still standing, as are several other buildings of the former town. The entire townsite is in pasture (i.e. not farmed).

Farmstead # 206 (owned by Arthur Grabanski; Diked)

Ground visibility was 100%. The east side of the farmstead had recently been bulldozed. No cultural material was observed or recovered.

Farmstead # 209 (owned by Harry Kulwicki)

Mr. Kulwicki told us to contact John Rolczynski in Minto concerning the location of Vincent Roy's Trading Post along the Red River. Ground visibility was 100%. No cultural material was observed or recovered.

The ground is starting to dry a little.

Monday - May 16, 1983:

It was a sunny, windy, warmer day.

Farmstead # 233 (owned by John Bishop; abandoned)

Ground visibility was 100%. No cultural material was observed or recovered.

We met Frank L. Ebertowski on the road while on our way to Farmstead # 235B. He said that there are several Frank Ebertowski's in the area. At one time there were as many as five. He said that the Little White Chapel located at Farmstead # 230 (owned by John Bishop, but not part of our

sample) was built in 1907. His father helped in the construction. An outdoor mass, attended by a large number of people, is celebrated at the Chapel one a year to ask for good crops, etc.

Farmstead # 235B (owned by Salvin Popowski; Diked)

Mr. Popowski showed us two grooved mauls that he found. Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead #236 (unknown owner)

Ground visibility was 100%. NO cultural material was observed or recovered.

Farmstead # 242 (owned by Harry Babinski)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 258 (abandoned)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 269 (owned by Stanley Ebertowski; Diked)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 275 (owned by Joe Osowski; his son, Larry, lives in the house)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 278 (owned by Dominic Duray)

Mr. Duray said that prior to the 1979 flood he used to find Indian artifacts on his farm. Ground visibility was 100%. Two flakes, one of Knife River Flint, were recovered. The site is thin.

Farmstead # 286 (abandoned; 1 shed)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 290A (abandoned)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 303 (owned by Richard Wosick; Diked)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 295 (owned by Ed Gerszewski)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 308 (owned by Art Nice; Diked)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 279 (owned by Robert Plutowski)

Mrs. Plutowski showed us pictures of the 1979 flood. She suggested that we contact Frank Schiller of the Minto Historical Society for possible prehistoric Indian site leads. She also said that her brother-in-law, Clarence Walski, has a projectile point collection. He lives three miles south: T155N, R51W, Sec. 19, SE $\frac{1}{4}$ SE $\frac{1}{4}$.

Ground visibility was 100%. No cultural material was observed.

We stopped at the Clarence Walski farm. Mr. Walski was not at home, but Mrs. Walski showed us his projectile point collection. Several points appear to be Paleo-Indian types. The majority are Woodland varieties. Mrs. Walski said that her husband finds them around pot holes in his fields.

Tuesday - May 17, 1983:

It was a sunny, warm, windy day.

Farmstead # 217 (abandoned)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 215 (owned by Marvin Kosmatka; Diked)

Ground visibility was 100%. No cultural material was observed or recovered.

Farmstead # 245 (owned by Walter Gerszewski; house is unoccupied)

Mr. Gerszewski said that his grandfather, Joseph, arrived and began homesteading the place about 1878. The original cabin was destroyed by a tornado in 1883 or 1884. Mr. Gerszewski used to find projectile points around the farmstead but he has not found any since the 1979 flood.

Ground visibility was 100%. Lithics, including a triangular, side-notched projectile point, were found thinly scattered along the lowest terrace of the Forest River.

Farmstead # 249 (owned by Darrell Slominski)

Ground visibility was 100%. A new house is on the place. Except for historic material near where the former house stood, no cultural material was observed or recovered.

Farmstead # 253 (nothing was located at this spot; therefore, it was not surveyed)

Farmstead # 244 (abandoned)

Ground visibility was 100%. No cultural material was observed or recovered. A wood cross, painted white and erected in 1910, is located near the highway along the drive leading to the house and outbuildings. One of the barns is of log construction in its lower half.

We ate lunch in Grafton. Afterwards, we stopped at the Heritage Village, but no one was there. Since the main Walsh County Historical Society is in Minto, we went there. We talked to Frank Schiller at the Museum in Minto. He showed us what Indian artifacts and displays were available,

but he was not very familiar with sites along the Red River. He told us to talk to John Rolczynski and gave us directions to his house in Minto. We went to Mr. Rolczynski's house but no one was home. We returned to Drayton and attempted to contact the onwer of the bison kill site, 32PB1, but no one was home. Next, we went to see Blanche Charbonneau, but she claimed that she did not have any collections of Indian artifacts. Strange, her name was given to us as a local collector. All in all, it was a very disappointing afternoon. We returned to our motel room.

Wednesday - May 18, 1983

It was a sunny, windy, warm day. We finished the surveying yesterday and wrapped up loose ends today.

We went to Grafton and obtained copies of the soil survey for Walsh County. Then we went to Minto to see John Rolczynski. He was home today, but he was too busy to take us around the area. He did say that he had located Roy's Post in T157N, R51W, Sect. 25, N $\frac{1}{2}$, north of Acton and north of a large bend in the Red River. He said there were no surface indications but he had recovered flintlock gragments with the aid of metal detector. Before we went to field check the location of the fur post we stopped at Farmstead # 244 (owned by Art Wosick) to check a log cabin covered with calpboard siding. The cabin is T-shaped and has dove-tail construction. The owner has tried to get the local historical society to preserve it, but no one seems interested in it. He also has a dismantled, numbered log grainery. Many old log structures in the area have been destroyed by arson and bulldozing. Too bad there is not much interest in preserving them. We went to the location of Roy's post as pointed out by Rolczynski but we did not find anything. A metal detector is probably essential in locating it. The land is owned by Earl Schultz. We returned to Drayton and talked to Alma Ness, the owner of 32PB1. Since the site has been studied by the University of North Dakota, we felt no need to see it personally. We returned to our motel room.

We will leave tomorrow. We made an appointment to see Dr. Michael Michlovic tomorrow between 10:00 and 11:00 am.

A number of farmsteads already diked but not within our 15% survey sample were observed during the course of the field survey. These diked farmsteads are #'s: 86,113,164, 166, 188, 227, 231, 257, 296, 304. Diked farmsteads within the survey sample have been previously noted.

Thursday - May 19, 1983

We left Drayton around 8:00 am and arrived in Moorhead, Minnesota about 11:15 am. We went to Moorhead State University to see Dr. Michlovic. He kindly showed us the artifacts from the Red River survey in Norman County, Minnesota and gave us a copy of the report. He has found several deeply buried sites along the Red River.

After eating lunch in Moorhead, we continued our drive home, arriving in Vermillion in the early evening.

FINISHED

Appendix D. Corps of Engineers Review Comments and Reply

CORPS OF ENGINEERS COMMENTS ON THE
DRAFT REPORT ENTITLED PHASE I ARCHAEOLOGICAL AND
HISTORICAL RESOURCES INVESTIGATIONS
FOR THE RED RIVER OF THE NORTH RING LEVEE PROJECT,
PEMBINA AND WALSH COUNTIES, NORTH DAKOTA

1. Please recheck the report for typographical errors.
2. P. v, para. 2, and p. 133-135: Use of the term "salvage" implies emergency excavation without forewarning. Testing, preservation, and planned mitigation by excavation do not fall into the above category. It is suggested that in the final report this terminology be changed to more accurately reflect testing or various mitigation procedures.
3. P. v, para. 3; p. 132, para. 4; and p. 134, para. 2:
 - a. It should be assumed that the Corps of Engineers will already have acquired this information and will have the cultural resources investigation look only at farmsteads that are occupied and have been approved for further flood control study. There should be no need for this windshield survey unless it is to locate significant standing structures.
 - b. P. 133, para. 1: Why are only ^{log}~~log~~ structures being recorded as architectural sites?
4. P. v, para. 5, first sentence: Shouldn't ". . . be conducted at all prehistoric sites . . ." read ". . . be conducted at potentially significant prehistoric sites"?
5. P. v, para. 6: Why is preservation recommended for historic sites only? (By historic sites do you mean standing structures only?) Preservation by avoidance or some form of protection is the preferred form of mitigation over excavation. Options for the preservation of prehistoric and historic sites should be discussed in the final report.
6. P. vi, para. 3: Is the total number of sites predicted (39-42) based on the location of 6 sites from only the sampling program, or from the sampling program and the informant information together? In this paragraph and throughout applicable parts of the report, the predictions should be adjusted or clearly explained and the use of informant information for site locations should be clarified when discussed in relation to the use of a statistical sampling program.
7. P. vi, para. 3, sentence 2: p. i states that the 4 historic farmsteads are not significant. Please clarify.
8. Pp. 2-5, Previous Research:
 - a. Please relate the locations of this previous research with the present study and project area. Please also describe the sites that were investigated or provide their cultural affiliation.
 - b. P. 2, para. 4, first sentence: The "G" in the contract number should be a "C". Change the latter part of that sentence to read ". . . conduct a preliminary field reconnaissance of portions of the Pembina River Valley that would be affected by a proposed reservoir."

c. P. 3, para. 1, last sentence: What region?

d. P. 3, para. 2, first sentence: What project area?

e. P. 3, para. 3, first sentence: The latter part of the sentence should be clarified to read: "a 25-percent sample of proposed flood control alternatives in Pembina County and a survey of portions of the Pembina River Valley in Cavalier County. The sites previously recorded by Ames in 1975 were relocated."

f. P. 3, para. 4: After Walhalla, insert "North Dakota." What were the two sites that were recorded?

9. P. 10, para. 1, Past Climates: A discussion of Shay (1967) would seem appropriate here.

10. General Environmental Background: As previously discussed in other report reviews, the environmental information is interesting but unless it is more specifically applied to how it affected the patterns and processes of people prehistorically and historically, it is not very useful. More detailed discussions of Shay (1967) and Michlovic's work in the Red River Valley would provide a basis for discussing climate, vegetation, and faunal resources and how these interrelated with people prehistorically and historically.

11. P. 35, para. 2: Please indicate the location of site 32PB25 in relationship to the current project area. A recent publication, "Recent Studies in Palaeo-Indian Prehistory" in the Manitoba Archaeological Quarterly, Vol. 6, No. 4, October 1982 (see particularly Schneider's article, "A Preliminary Investigation of Paleo-Indian Cultures in North Dakota"), should be cited and discussed in relation to the Paleo-Indian period in the northeastern Plains.

12. P. 35, para. 3; p. 36, para. 2; p. 40, para. 1: All references and distance figures used from the Pembina report should be changed to include the entire present study area.

13. Pp. 37-40: Several other important works should be discussed in relation to Archaic, Woodland, and late Prehistoric occupations. Michlovic (1980, 1982, 1983 a and b), Syms (1977), and Michlovic's recent work at 21NR29 near Halstad, Minnesota (COE contract report in preparation), are central to a discussion of the occupation and interaction of groups prehistorically in the northeastern Plains and particularly the Red River Valley.

14. Pp. 41-43, Historic Indian Groups: Michlovic's (1983a) discussion of historic Indian groups in the Red River Valley should also be included. Michlovic mentions the presence of the Hidatsa and Cheyenne in the Valley. Michlovic also provides alternative hypotheses to explain the movements, migrations, and use of the region by prehistoric and historic groups.

15. P. 41, para. 3, line 11: If Denig (1961) wrote in the "mid-1800's", then what is the original publication date?
16. P. 42, para. 2, and p. 43, para's. 2-3: Care should be taken when using phrases such as ". . . who were lured. . ."; ". . . the Chippewa lost their status as a pivotal population . . ."; ". . . described as depressed. . ."; and ". . . dependent upon the fur trade . . ." It is preferred that such phrases be placed in a more objective context or discussed and cited in reference to the appropriate author's point of view.
17. P. 44, para's 1-2: Do these forts have names, legal locations, and site numbers?
18. Pp. 44-45: In the final report, if the conflicts between the Sioux and whites are going to be discussed, it is suggested that an objective viewpoint be taken; that the causes surrounding the conflicts be examined; and that the account of the events not consist of biased anecdotes from white historians and other white authors.
19. P. 46, para. 3: Who were the Fenians?
20. P. 47, para. 1: Remove the word "hostile."
21. P. 48, para. 2: Remove this entire paragraph or discuss the biases behind such judgemental descriptions by white writers.
22. P. 48, para. 3: "They farmed, but half-heartedly" and "neglecting their land for the more exciting pleasure of the chase" are again biased descriptions of the Metis lifeway. Remove these or put them in their proper perspective as biased viewpoints.
23. P. 49, para. 2, lines 9-14: The sentence "Naturally . . . on many occasions" does not make sense. Further the last two sentences again come off as fact and not as opinions.
24. P. 51, para. 2, line 3: "1897" should be "1797".
25. P. 51-55: What has been done or what are the possibilities in relocating any of the posts?
26. P. 54, para. 2: The Fur Trade in Canada by Harold A. Innis (1930) should be discussed in relation to these events.
27. P. 60: What are the reasons why these particular ethnic groups settled in Pembina and Walsh Counties?
28. P. 62, para. 4, lines 2-4: This process recurred in numerous areas across the U.S., it is not unique to only the study area.
29. P. 62, para's. 3-4: The terms "took advantage" and "exploitation" are white terms and do not accurately describe Indian cultural patterns and processes.
30. General Prehistoric and Historic Overview comment: The prehistoric and historic overviews should serve a number of important functions:

a. Present the Corps with a document which will identify existing and potential sites of significance in the project area. In this regard, when a fort, post, settlement, site or other area of cultural use is identified we would like to know what surveys have been undertaken to locate them, if they should be looked for, or if they are destroyed.

b. Identify themes which spur cultural prehistoric and historic activities. Since not all prehistorians and historians agree, the state of the literature should be examined for controversies and the direction of study (e.g., in the historic section did settlements draw railroads or did railroads lead to settlements?).

31. P. 70, para. 1: P. iii states that "Shovel tests were dug at 15 to 20 meter intervals in areas where vegetation cover was 75 percent or more." P. 70 states ". . . small circular shovel test pits at about 20 meter intervals in areas where vegetation cover was more than 25 percent." Which is correct?

32. The figures do not show any of the farmstead locations, which farmsteads were surveyed, the exact boundaries of the field reconnaissance, the field methodology employed at each survey location, and the location of all shovel tests. These will be included on the quad maps in the final report. Furthermore, all shovel test stratigraphy and results were to be recorded on testing forms, correlated to their location on the maps, and included in a report appendix. These will also be included in the final report.

33. Site Investigation: Section 7.09 of the Scope of Work states: "The Contractor will shovel-test any located sites sufficiently to determine the existence of cultural materials and/or features, their condition (in situ or disturbed), the horizontal and vertical distribution of the remains, and, if possible, the cultural affiliation of the site(s)."

There is no evidence in the draft report that this work was accomplished. The draft report is incomplete until descriptions of this work are included. Preliminary site investigation beyond surface reconnaissance and collecting is essential in the Red River Valley in order to begin determining the extent, depth, and number of components of a site. Michlovic's recent work at the Canning site and 21NR29 demonstrate the presence of undisturbed cultural material from just below the plowzone to six feet below the surface. If the only information we have on a site is from the most recent, and in many cases, disturbed surface component, that does not give us a good idea of the extent of a site, its significance, or how much work and money will be required to investigate the site's eligibility.

34. Site Descriptions: General comments:

a. Provide the county each site is located in.

b. Provide the farmstead number each site is associated with.

c. How close and what is the relationship of each site to each farmstead and proposed ring levee?

d. Provide project impact information for each site. How much of each site is going to be impacted? What, if any, will the impacts be to the historic structures (particularly when the proposed ring levees will be surrounding the farmsteads)? According to the project manager, the ring levees should not be directly impacting any of the farmstead structures, with the possible exception of a few outbuildings.

e. Because Section 7.09 of the Scope of Work was not completed, each site description inadequately addresses the extent, depth, and number of components of each site. It is not adequate or informative to broadly state for every site that there may be buried cultural material. Informal subsurface testing by either coring or shovel testing should indicate the presence of buried cultural material or potential soil horizons. Without this preliminary data, there is no way to predict whether sites are intact, and have buried components. Future cost estimates and investigative research designs have little to be based on and must be overinflated to account for all of these implied possibilities. Each site description will address these needs when Section 7.09 of the Scope of Work is completed.

f. Each site description will more adequately discuss each site's significance or nonsignificance. While at the preliminary investigation level not enough information is always available to definitely determine a site's eligibility or non-eligibility, an analysis of the importance or potential significance of the data on hand is possible. In the site descriptions, prehistoric sites with 1 flake are discussed at the same level as sites that yielded lithic tools and ceramic rim sherds. Further, historic sites yielding numerous artifacts (with 4-5 diagnostics) and faunal material are written off without an explanation.

g. The only recommendations in the site description section are either that a site should be further investigated or it should not be. For the final report consideration should be given to other possibilities. For example, recommending that potentially significant historic site areas such as New Fort Pembina be dropped by the project or avoided.

35. 32PB41, pp. 85-86:

a. Blackduck is late Woodland.

b. A photograph of the ceramic sherds will be included in the final report.

c. In the valley, there is the potential for any site to have buried cultural material dating to the retreat of Glacial Lake Agassiz, not just buried material from late prehistory.

36. 32PB42, pp. 87-89:

a. Please include a photograph of the rim sherd in the final report.

b. See comment 35c.

37. 32PB43, pp. 90-91:

a. What information was acquired on the historic occupation from a records and literature check?

b. Was there any evidence of a house foundation?

38. 32PB45, pp. 94-95:

a. How much of the fort area did you survey? Was cultural material observed? Has it ever been investigated before?

b. A more thorough discussion of this site's significance should be included in the final report.

c. If the fort was so important, should it be considered as eligible for the National Register without further investigation?

39. 32PB46, pp. 96-97:

a. Wasn't information available specifically on the log house? The deed record information is not useful in its present form. Can any of this information be traced to the house?

b. Why is the house architecturally significant?

40. 32PB47, pp. 98-101:

a. Based on the rim sherds, what is the cultural affiliation of the pre-historic component? Please include photographs of the rim sherds in the final report.

b. How do you know the historic component is confined to the plowzone?

c. Pottery figure references: For specimen S-8 and S-9, the figure references should be "54" instead of "47".

d. Further justification on why the historic component should be written off is necessary.

41. 32PB48, pp. 102-104:

a. Why is the house not architecturally significant?

b. Again, how do you know the historic component is confined to the plowzone?

c. Further justification for writing off the historic component is necessary.

42. 32WA7, pp. 106-108: Do you know the location of the unmarked graves, the schoolhouse and the old stores in relation to the proposed ring levee?

43. Roy's Fur Trading Post, pp. 113-114:

a. The site description implies that this is definitely the location of the post, while the recommendations state that the location has not actually been confirmed. The site description should, from the beginning, indicate that the location has not been confirmed. Further, the site description should elaborate on why it is felt this is the post's location. The discussion implies that because gun parts have been found, it is the post's location. Since no surface artifacts have been collected by professional archaeologists, and no subsurface testing has been conducted, what other data is there to base this identification on?

44. Table 16: The sites located during the survey should also be listed in association with the appropriate farmstead number and soil type.

45. P. 125, para. 1: If 13 sites in Pembina County and 4 sites in Walsh County are "located within the vicinity of the levee project area", why aren't all of them discussed in the report?

46. P. 125, para. 3:

a. What percentage of sites are associated with each of the 4 soil types mentioned.

b. P. 115, para. 2 indicates that in both counties, 50 soil types are associated with sites, not 61 as is stated on page 125. Please clarify.

47. To be able to use site location and soil type associations to establish and predict future site locations, or to rule areas out, the results are going to have to be quantified and tested. Since a statistical sampling approach was used for the reconnaissance survey, couldn't the soil types associated with each farmstead and the site locations be worked into a statistical sample to begin predicting which soil types are potential and which aren't?

48. P. 127, para. 2: What are "the most likely soil associations on which sites are most likely to occur", and "the soil types which would not have sites associated with them"?

49. P. 129, para. 1: Which sites were located through the sampling procedure and which through the informant interviews?

50. P. 129, para. 2: Do you feel that your statistical sampling procedure and associated results are adequate enough to justify writing off all areas except "farmsteads located adjacent to the Red River and its tributaries"? (See also the State Historical Society of North Dakota's comments #14 and #16.)

51. P. 129, para. 3, and p. 131, para. 2: As previously mentioned, there is evidence that Archaic people lived in the valley. Although you are correct in stating that the Archaic sites may be buried, they have been found; have been excavated; and are not as inaccessible or as problematic as you imply. Further, a geomorphologist from WES (a Corps of Engineers laboratory in Vicksburg, Mississippi), who is studying the Red River Valley, believes that the river has been entrenched in much of the same area for thousands of years.

52. P. 132, para. 2: The reasons for these recommendations should be justified (see also comment #50).

53. P. 133, para. 2 and p. 134, para. 3: What will the field methods and testing methodology be for the intensive pedestrian reconnaissance? How will the testing methodology reflect the need to subsurface test for buried components (potentially as deep as 6 feet below the surface)? Innovative and creative strategies must be developed to adequately test this alluvial system.

54. Pp. 133-135:

a. What about other forms of mitigation besides moving historic structures and excavating sites (e.g., avoidance, preservation)?

b. P. 133, para. 4: How do you justify the statement that "It is believed that few of the historic occupations will warrant salvage/test excavation"?

55. Figures:

a. See comment #32.

b. Project area and site locations plotted on the GLO and other historic maps would make those figures useful to the report. As they are now, it is impossible to know where you are, what you want to be looking at, and where the survey area and sites are. They become report filler instead of an incredibly useful historic resource.

References Cited

Innis, Harold A.

1930. The Fur Trade In Canada, Yale University Press.

Michlovic, M. G.

1980. "Ecotonal Settlement and Subsistence in the Northern Midwest" in Midcontinental Journal of Archaeology, Vol. 5, No. 2, 1980, pp. 151-167.

1982. Report on the Red River Archaeological Survey in Norman County, Minnesota. Ms. on file in the Department of Sociology and Anthropology, Moorhead State University, Minnesota.

1983a. The Red River Valley in the Prehistory of the Northern Plains. Plains Anthropologist, 28(99):23-31.

1983b. The Canning Site (21NR9) and Cultural Stability on the Prehistoric Plains. Ms. on file in the Department of Sociology and Anthropology, Moorhead State University, Minnesota.

Schneider, Fred

1982. "A Preliminary Investigation of Paleo-Indian Cultures in North Dakota," in "Recent Studies in Paleo-Indian Prehistory", Manitoba Archaeological Quarterly, Vol. 6, No. 4, October 1982.

Shay, C.T.

1967. Vegetation History of the Southern Lake Agassiz Basin During the Past 12,000 Years. In: Life, Land, and Water, ed. by W. J. Mayer-Oaks, pp. 231-252. University of Manitoba Press, Winnipeg.

Syms, E. L.

1977. "Cultural Ecology and Ecological Dynamics of the Ceramic Period in Southwestern Manitoba", Plains Anthropologist, Vol. 22, No. 76, Part 2, May 1977, Memoir 12.

Reply to Corps of Engineers Review Comments

All Corps review comments were changed within the report except for:

15. P. 41, para. 3, line 11: If Denig (1961) wrote in the "mid-1800's", then what is the original publication date?

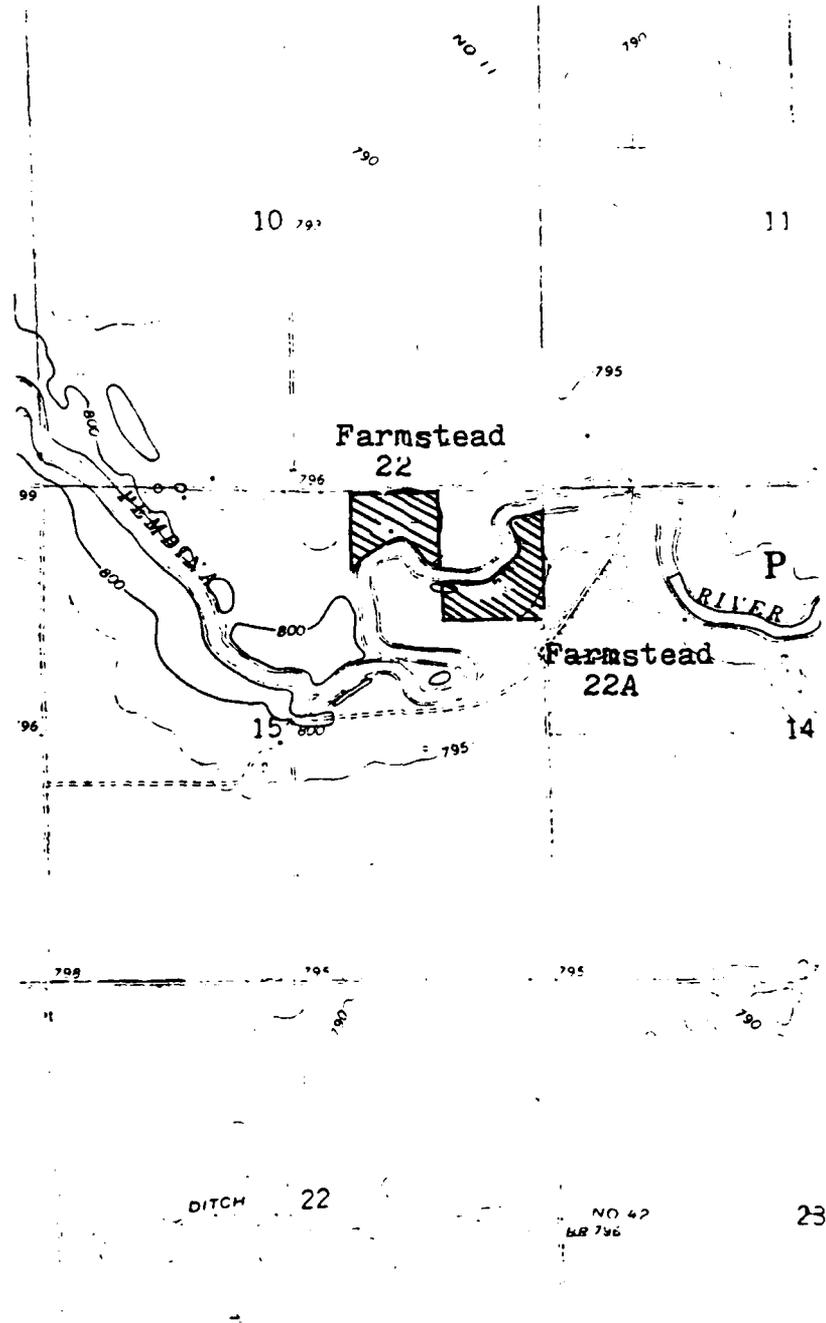
1961 is the first time that Denig's manuscript was published under one cover. Denig's manuscript was edited by J. C. Ewers.

32. and 33. Comments: The quad maps in the report have been revised to show areas surveyed. Exact locations of shovel tests on the maps would be too close together and too small (because of map scale) to show. Appendix E contains copies of 7.5 minute quad maps for each of the farmsteads within the 15 percent stratified sample that did not contain sites. Areas surveyed are indicated. Shovel tests are explained in Chapter 4.

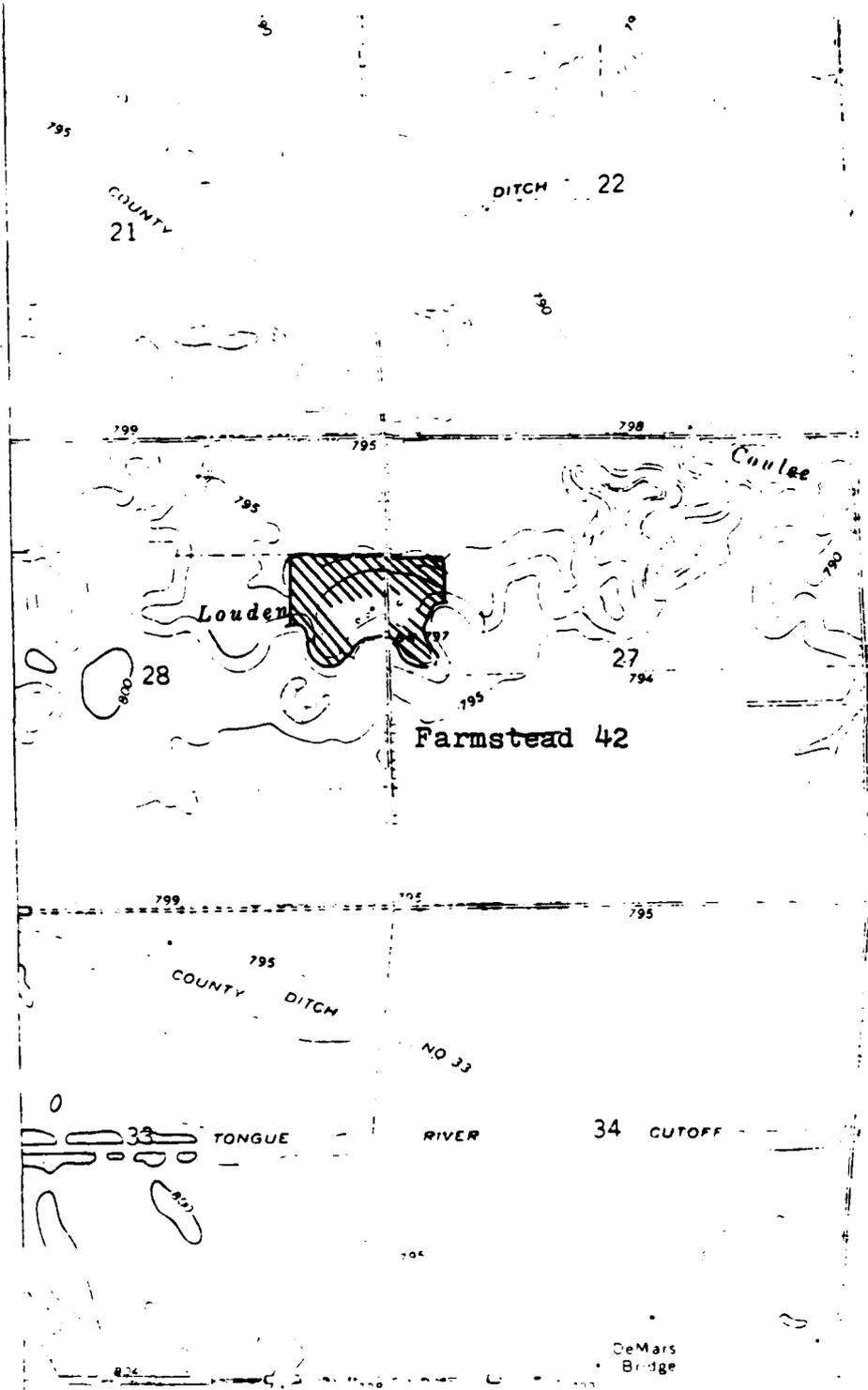
34. a. Provide the county each site is located in.

On page 89 of revised report, it has been added that the Smithsonian Institution trinomial numbering system was used. Because the site number (i.e., 32PB41) has coded within it the county designation, it is redundant to specify which county it is in.

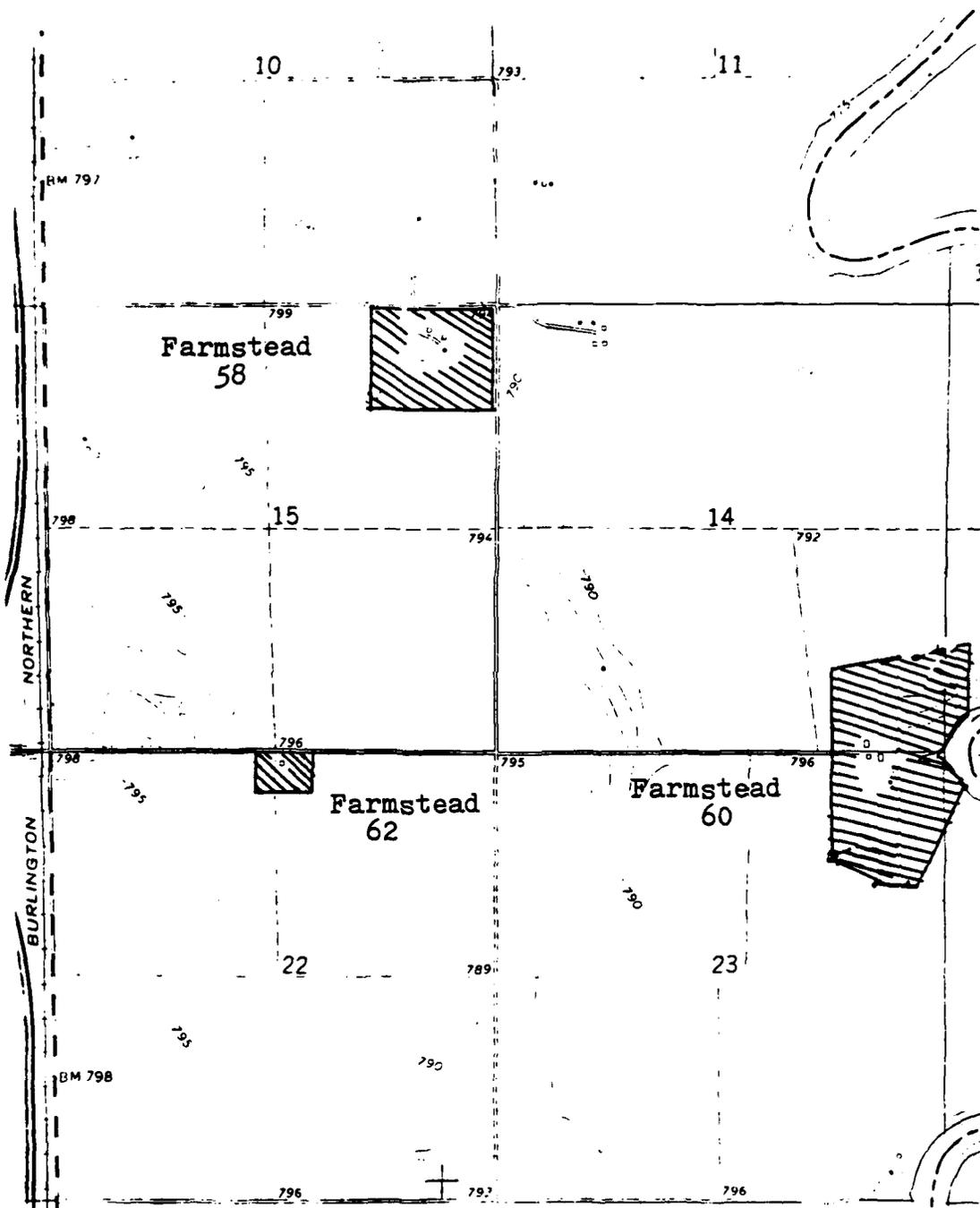
Appendix E. 7.5 Minute Quad Maps Showing Areas Surveyed



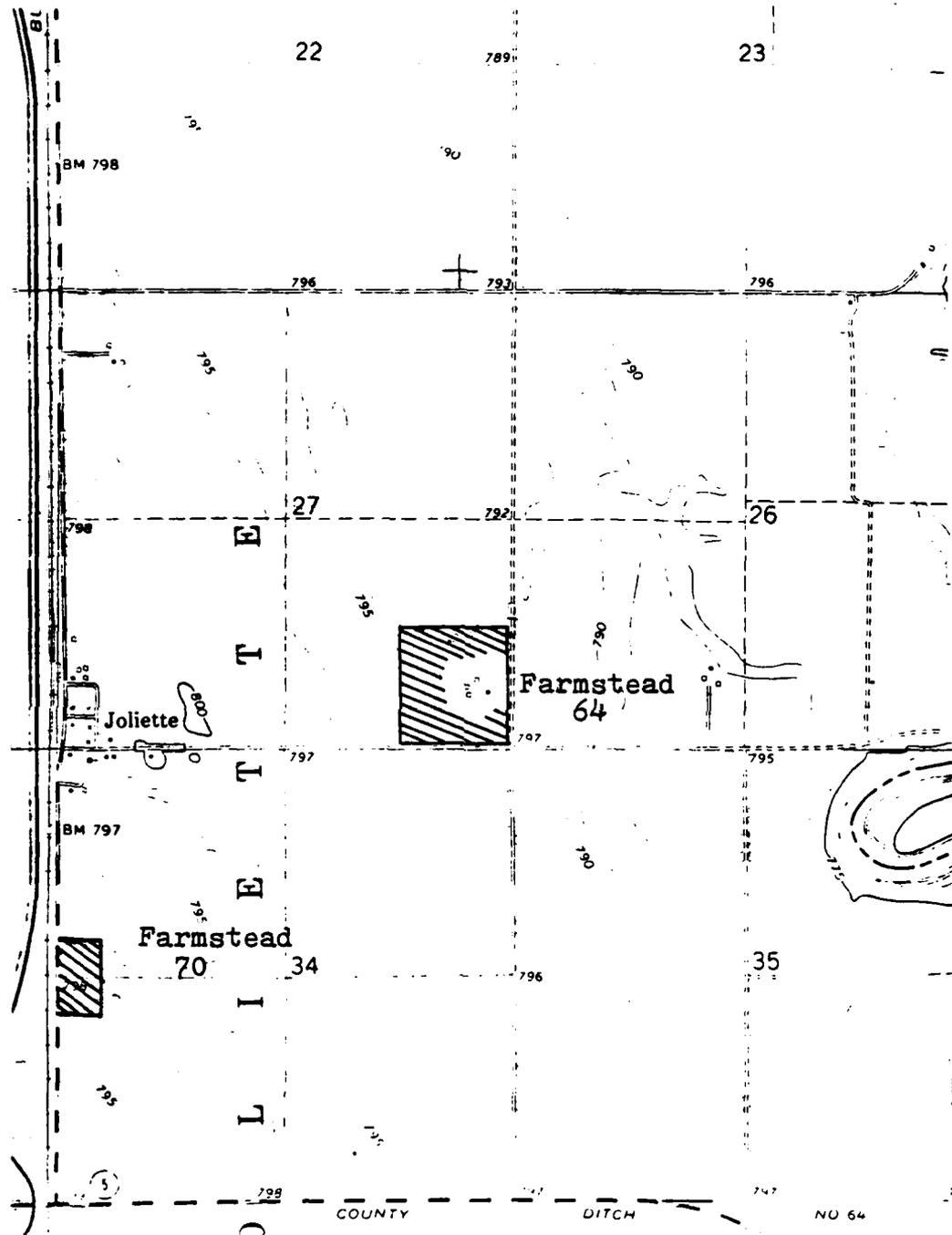
Bathgate NE Quadrangle



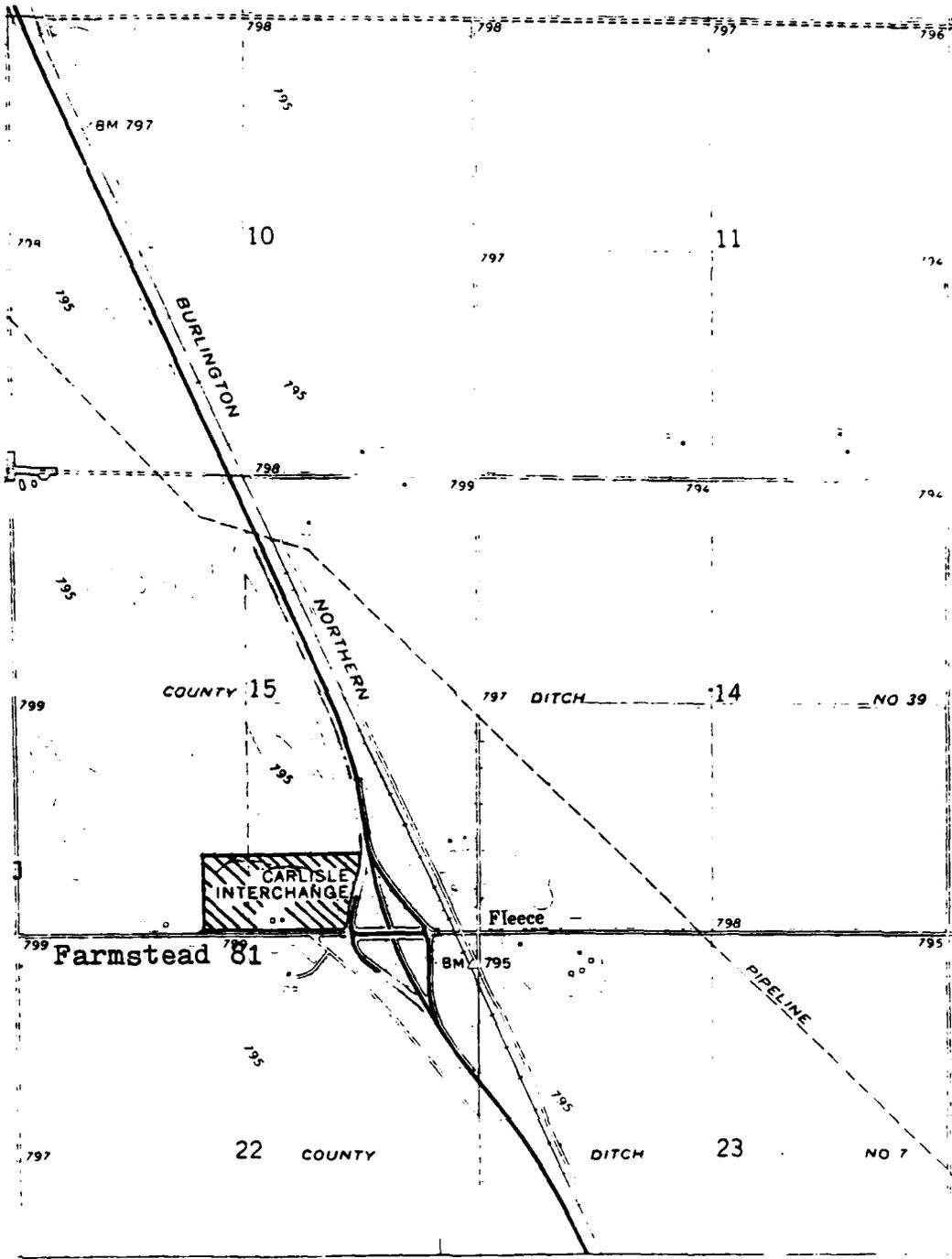
Bathgate NE Quadrangle



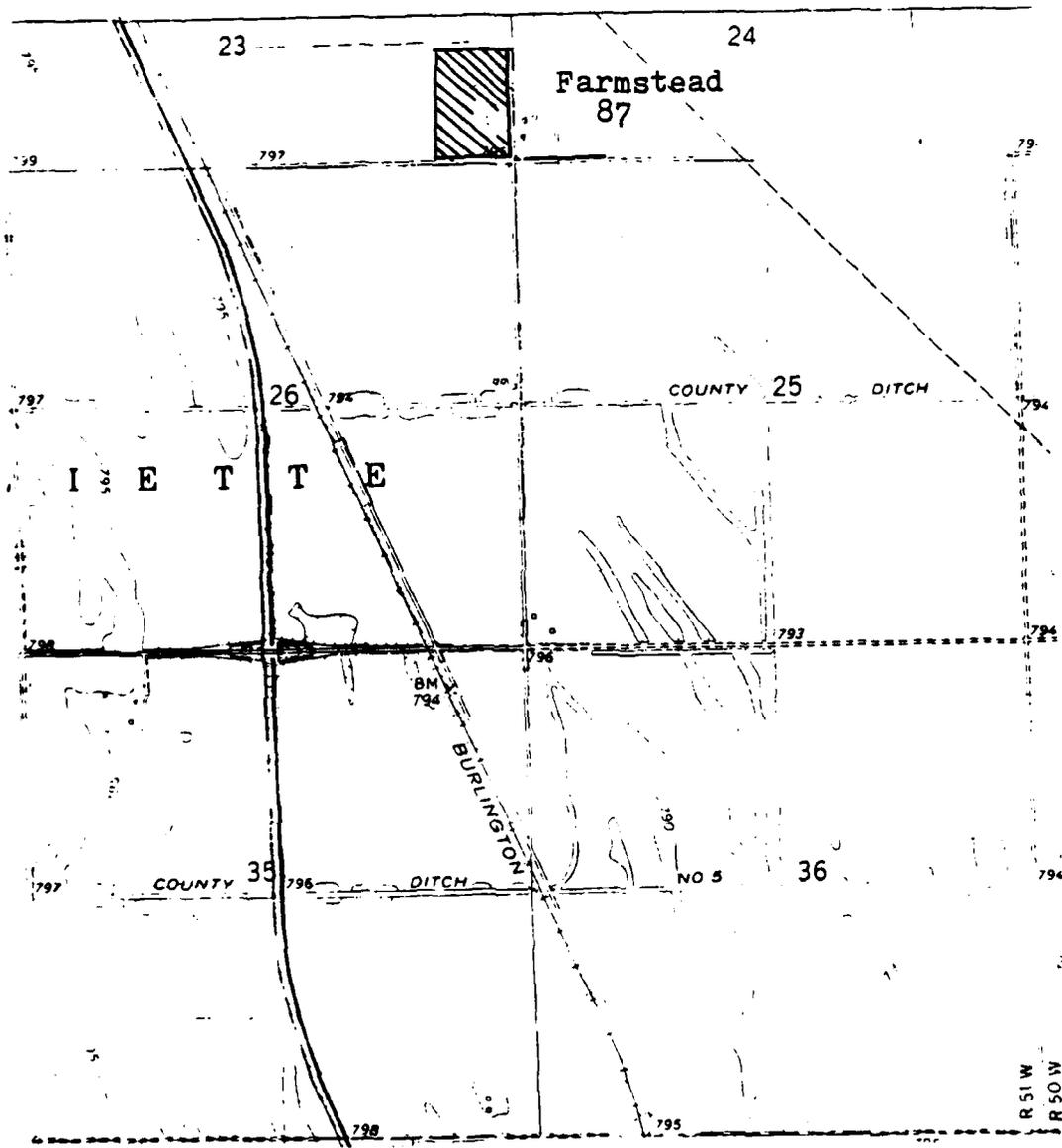
Joliette Quadrangle



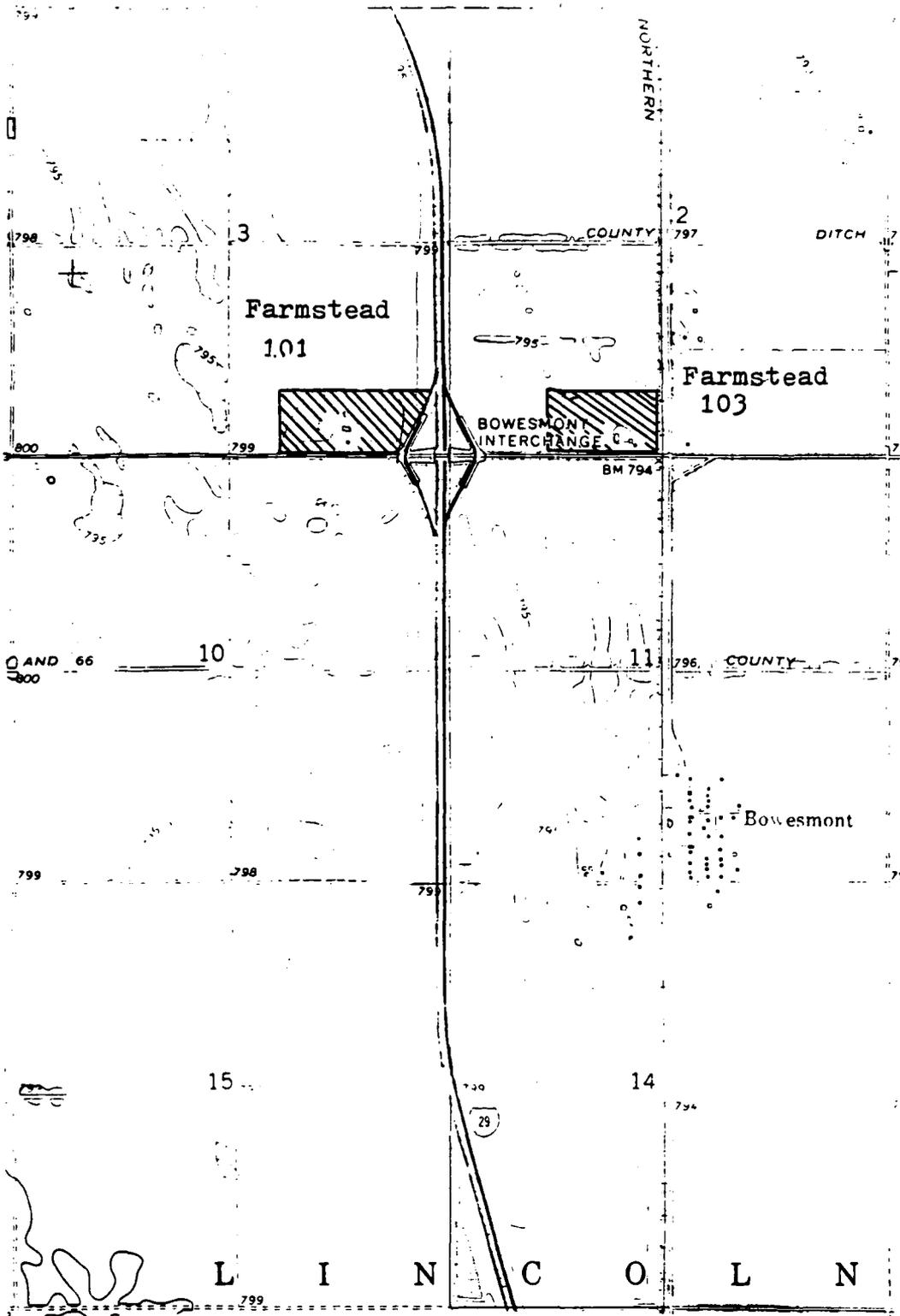
Joliette Quadrangle



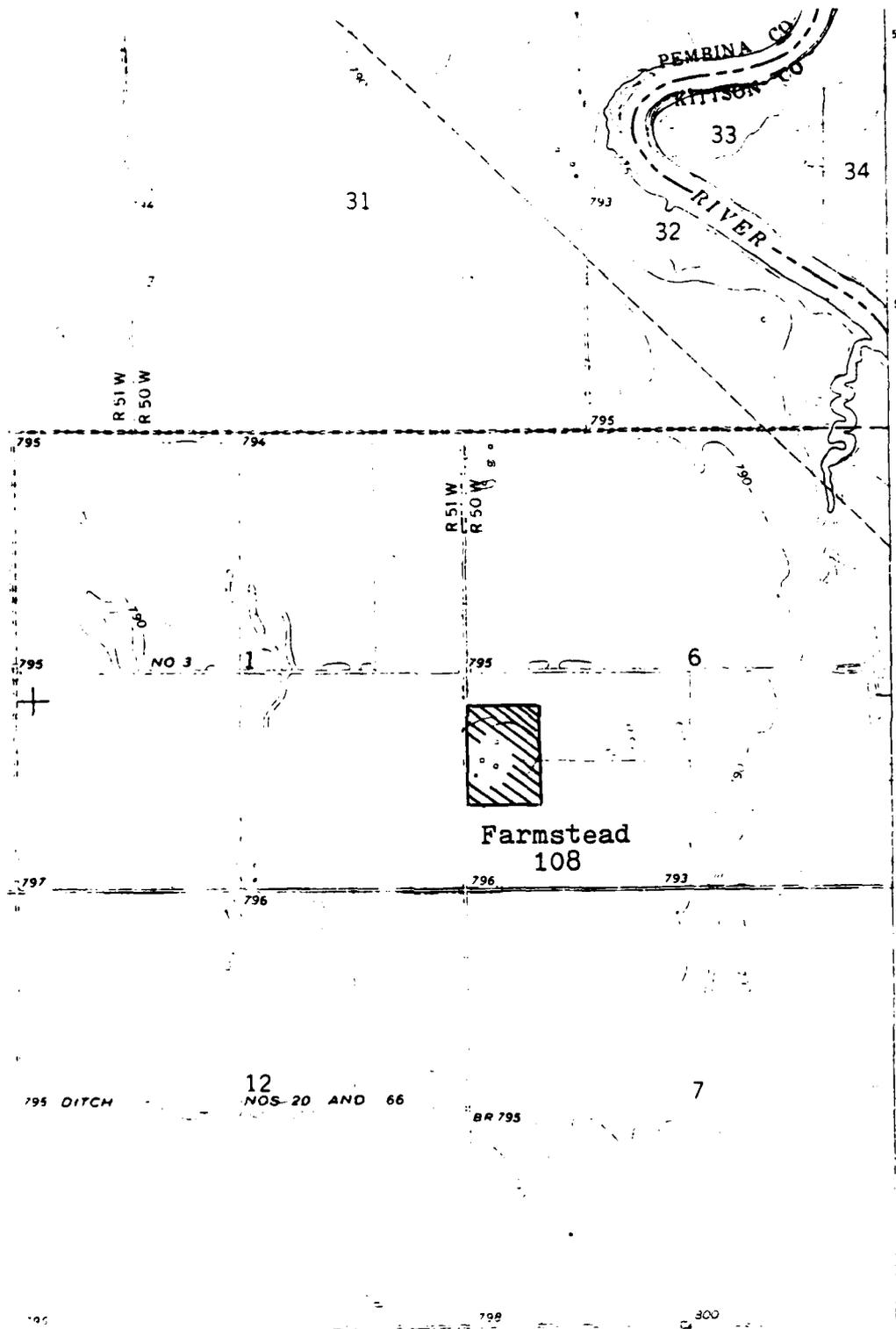
Joliette Quadrangle



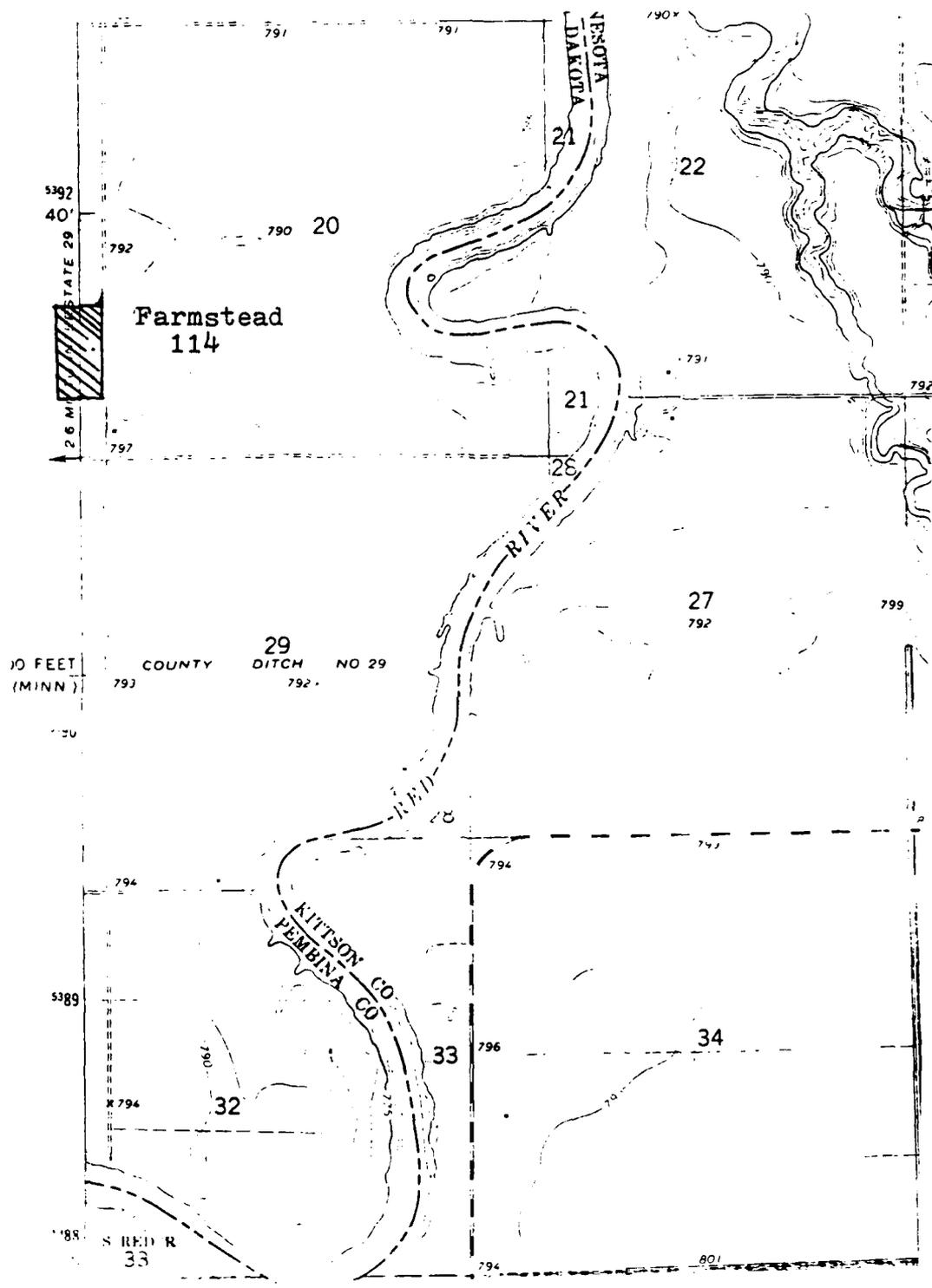
Bowsmont Quadrangle



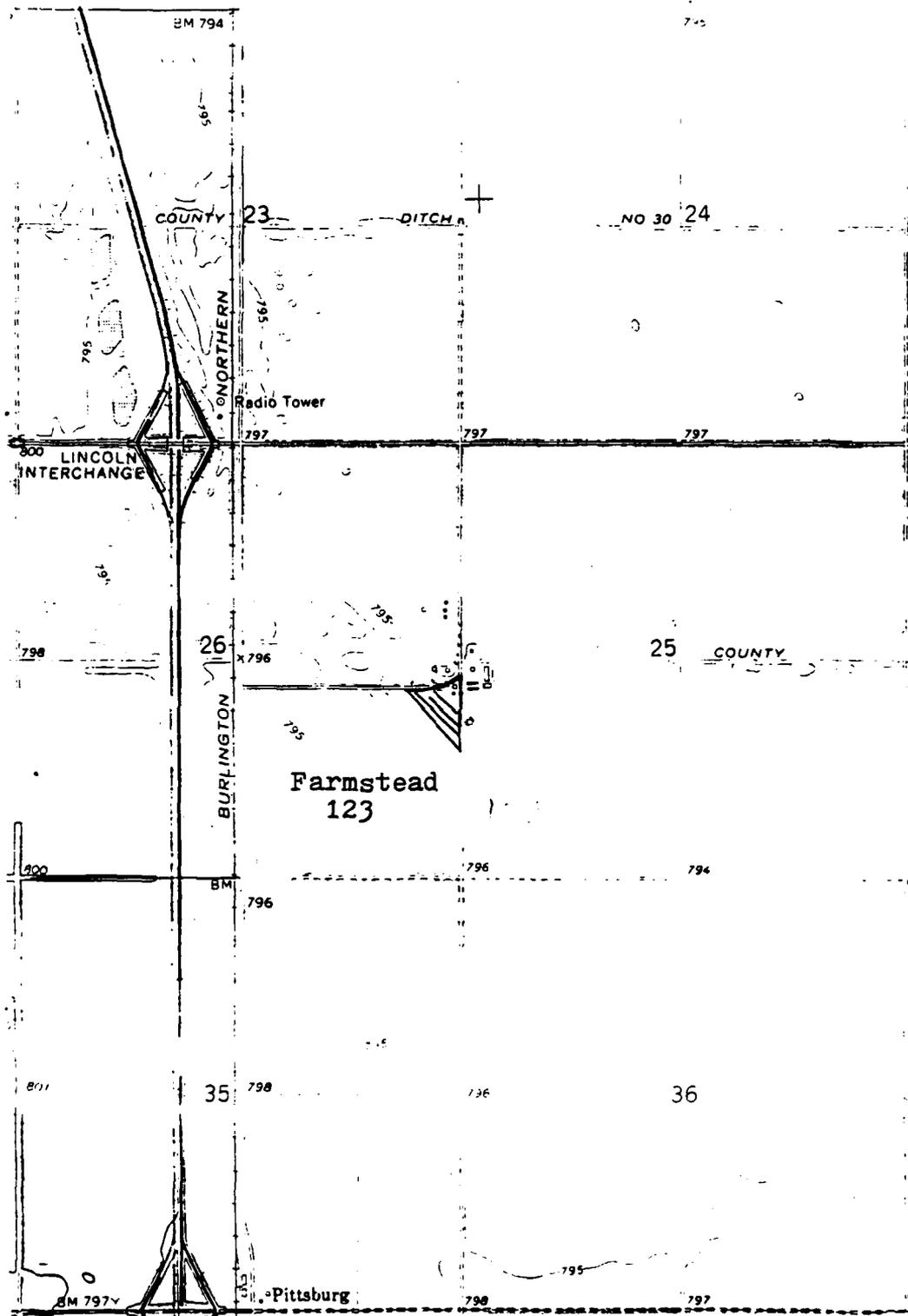
Bowsmont Quadrangle



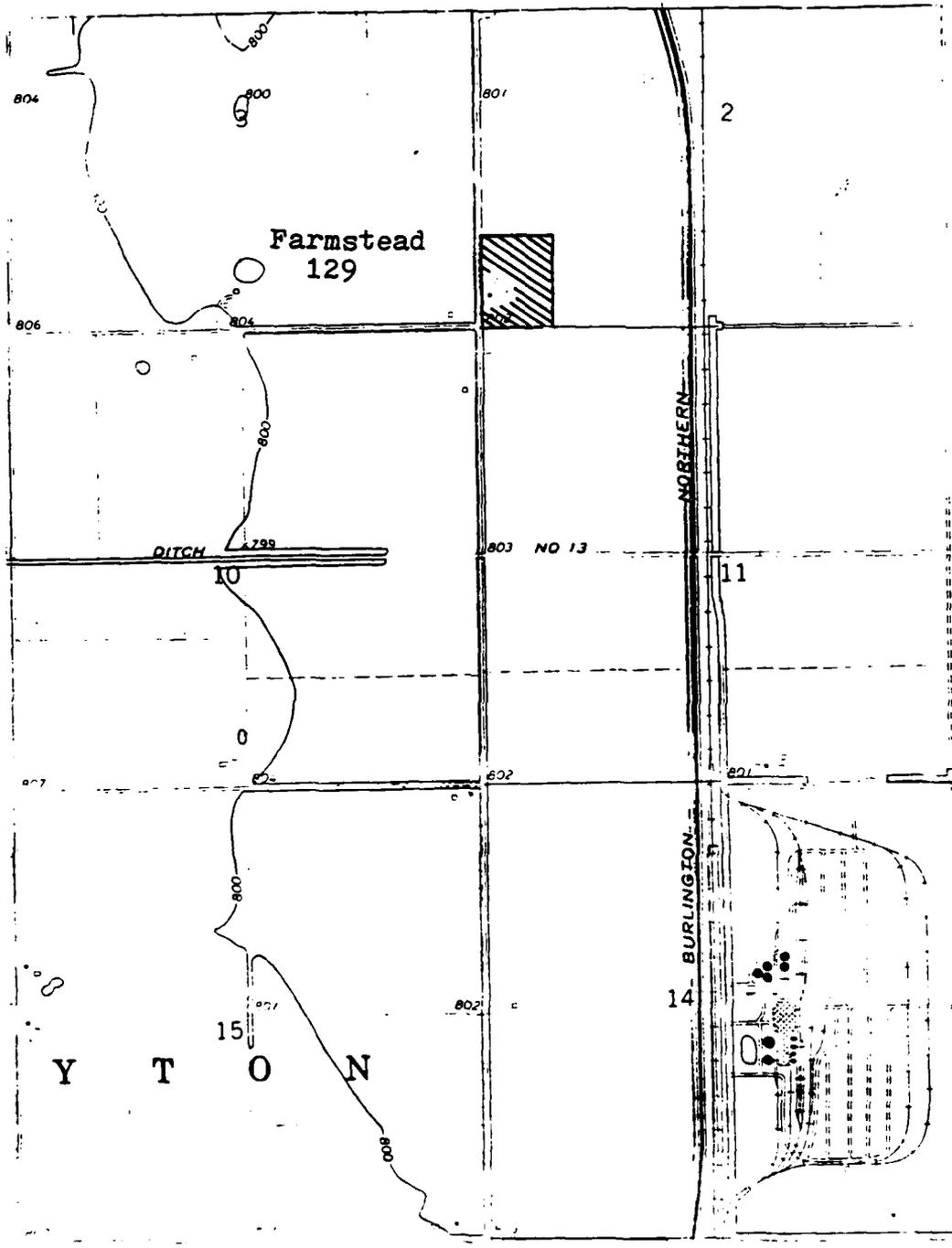
Bowsmont Quadrangle



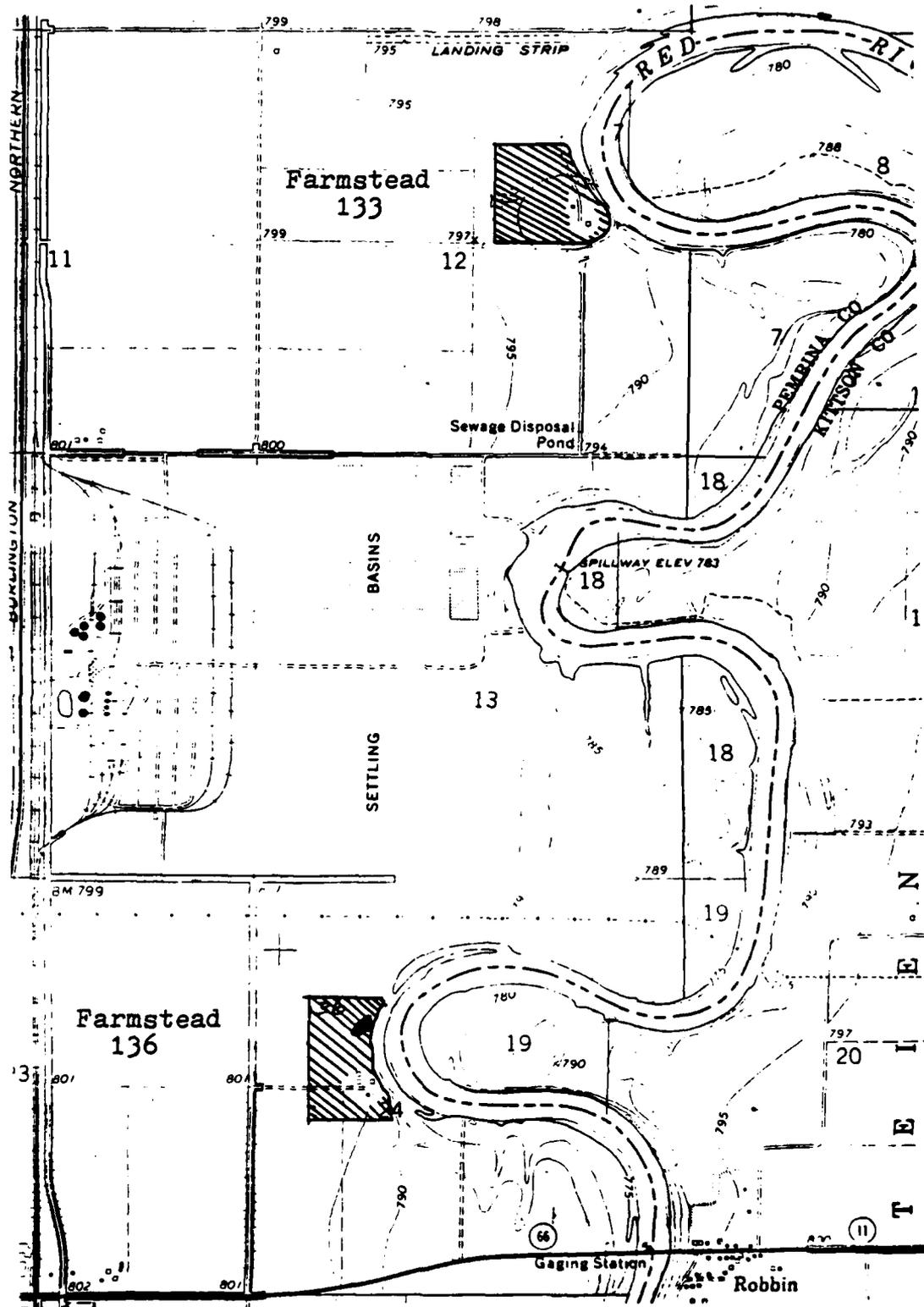
Mattson Quadrangle



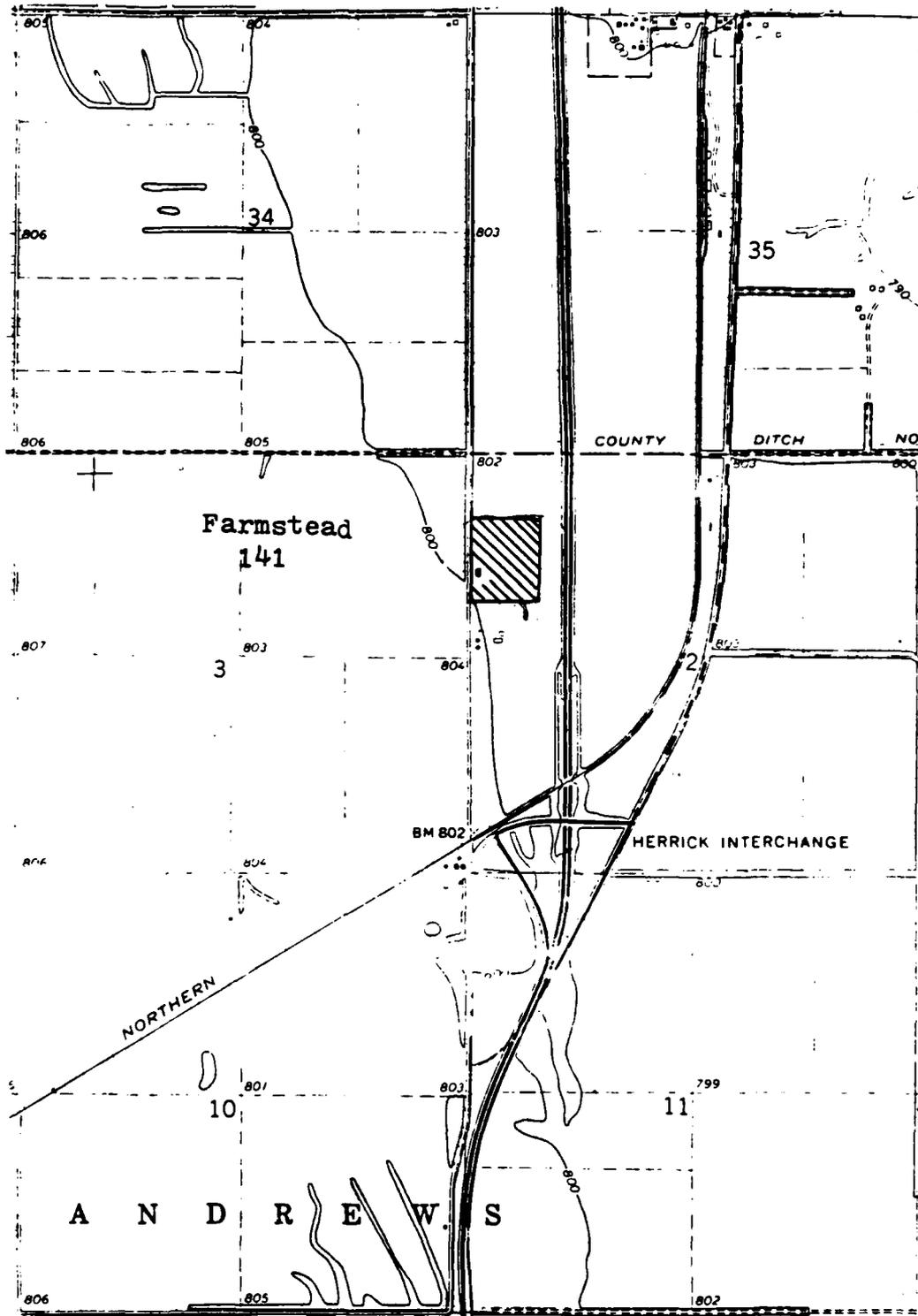
Bowsmont Quadrangle



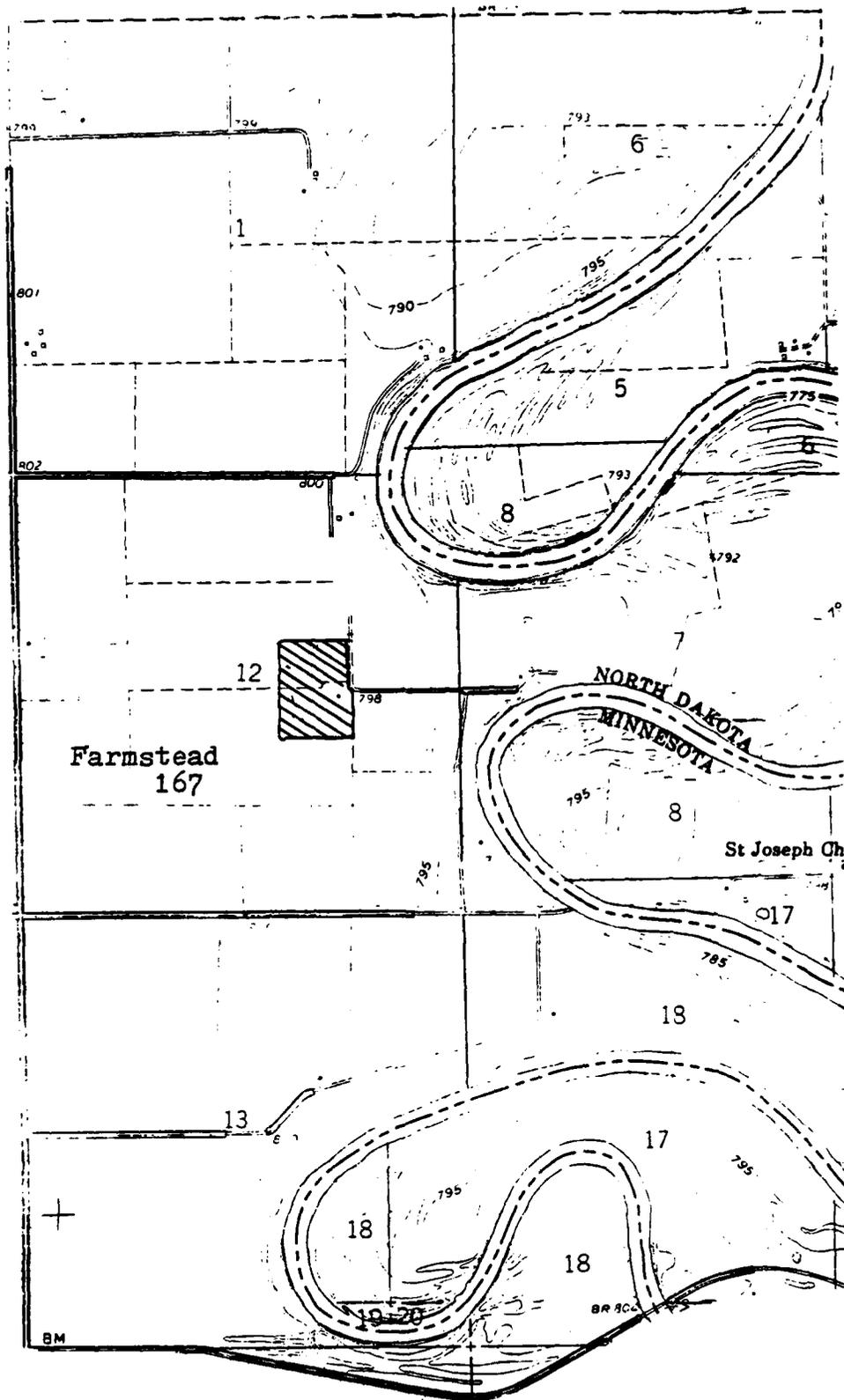
Drayton Quadrangle



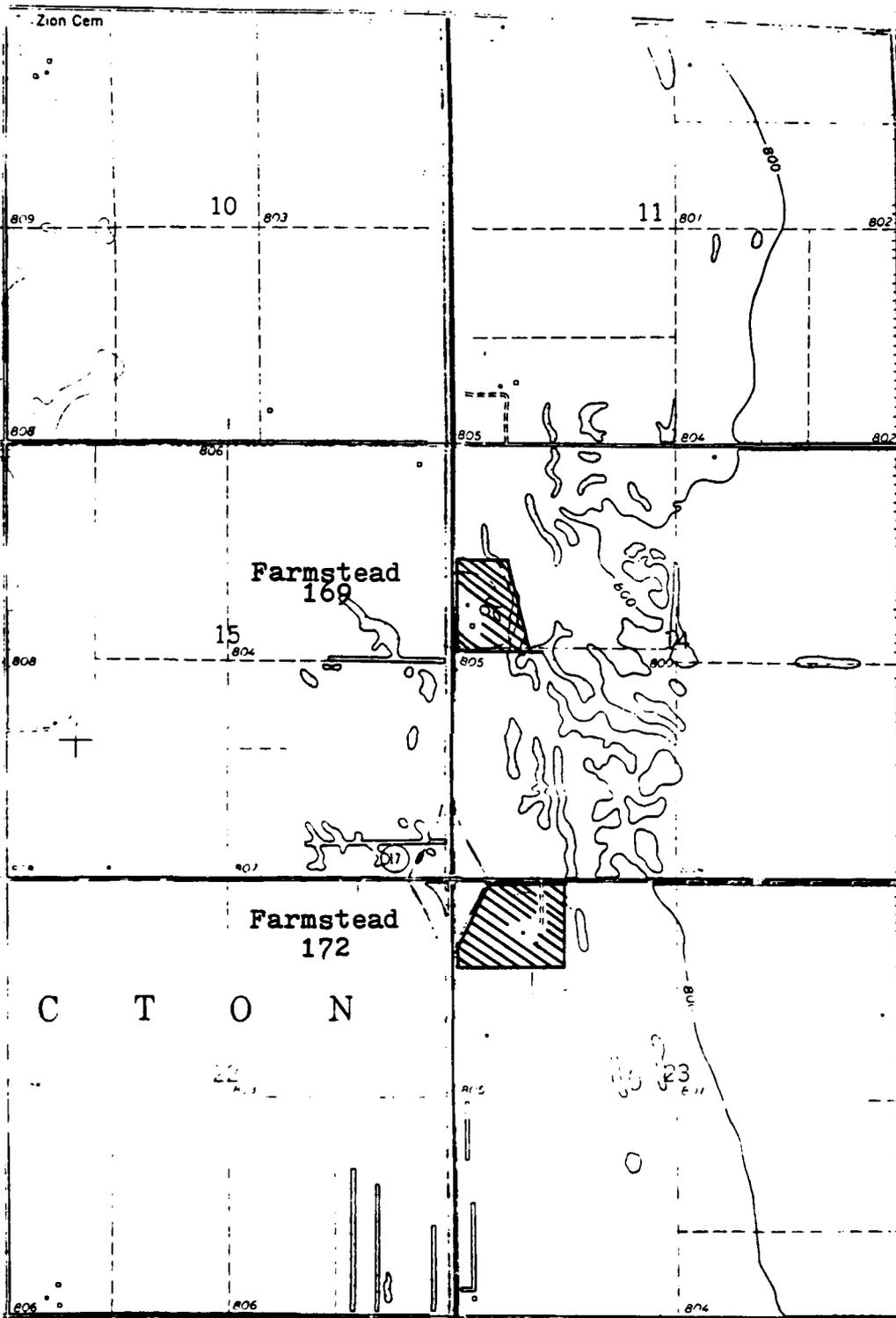
Drayton Quadrangle



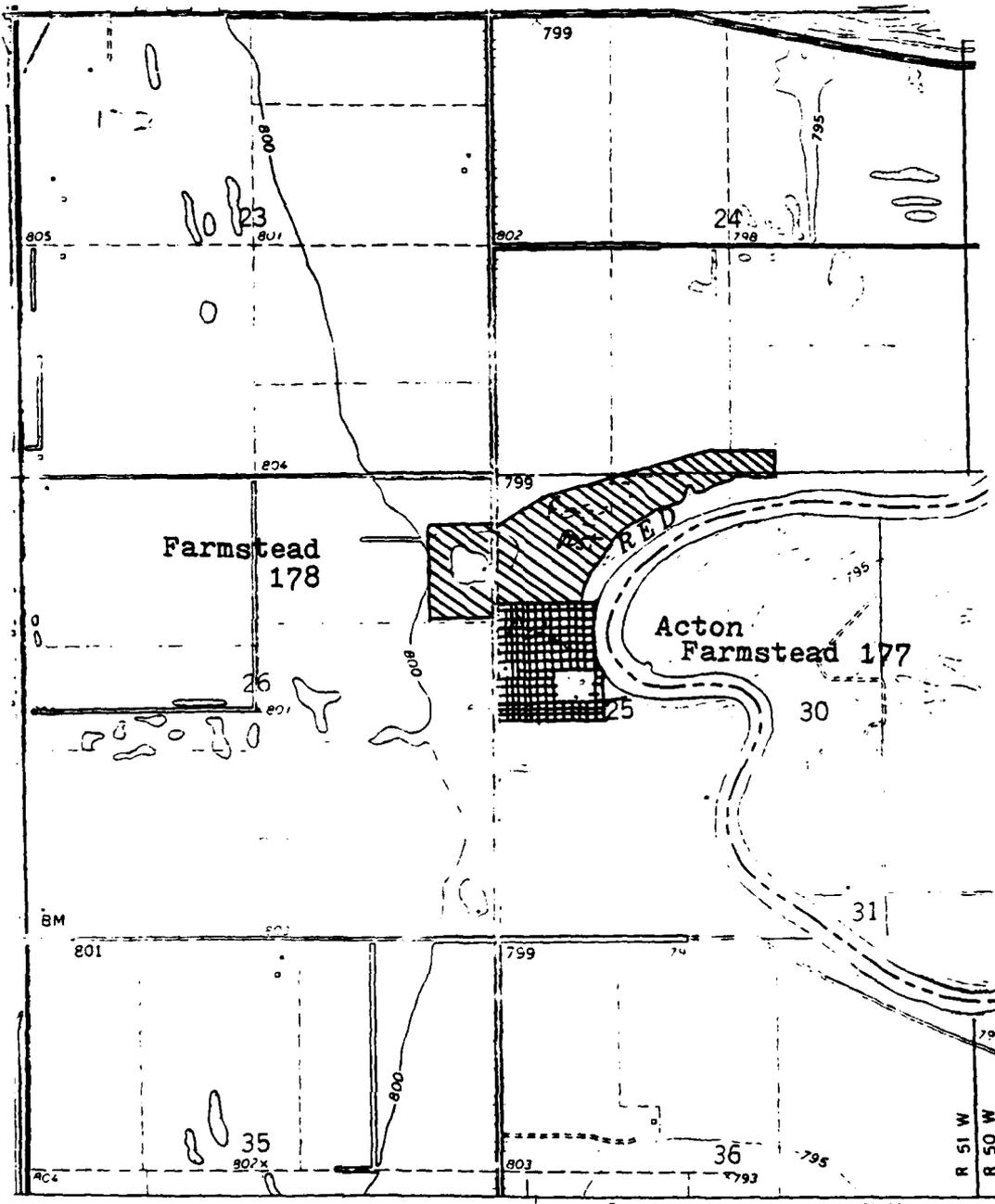
Drayton Quadrangle



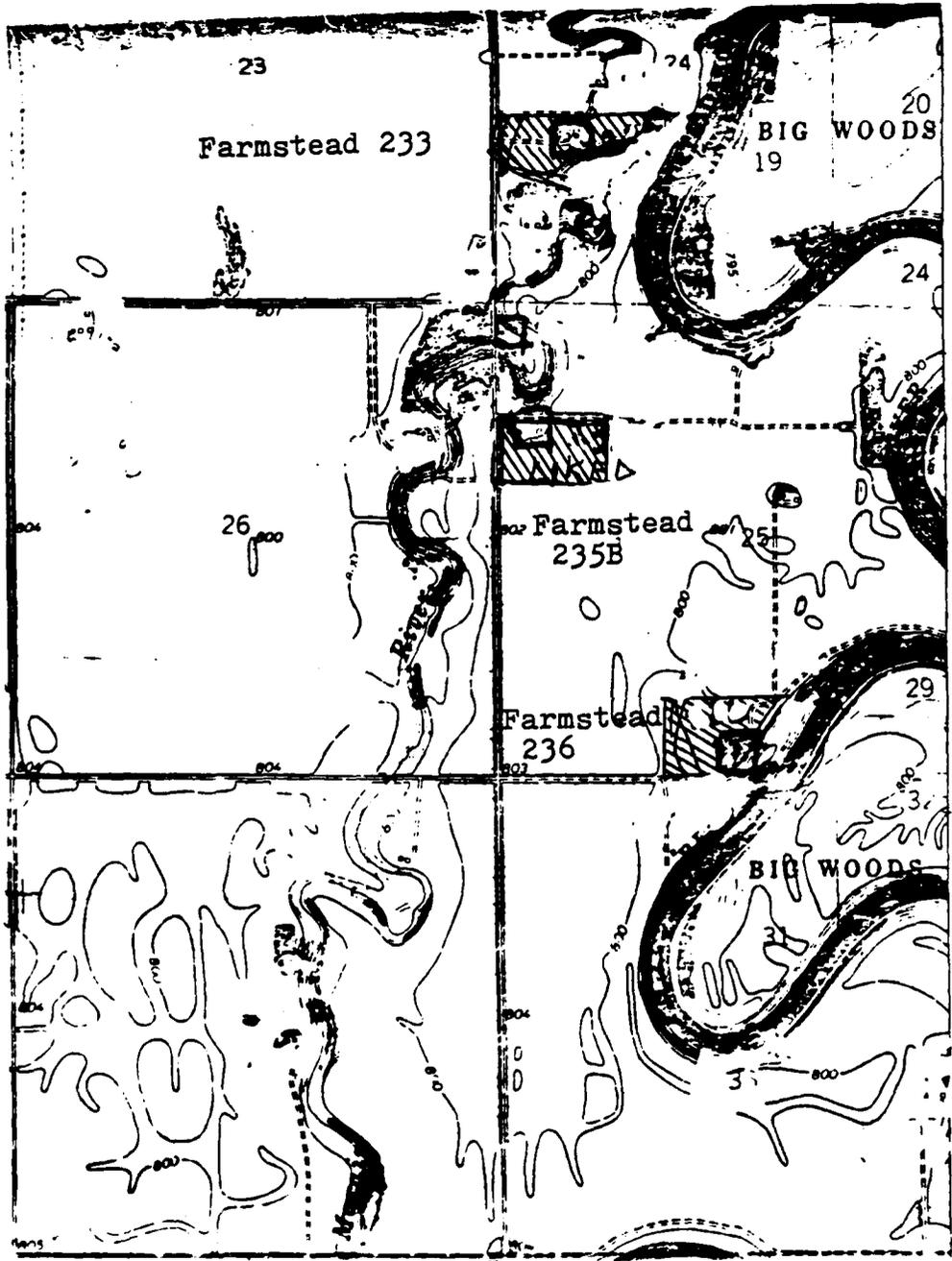
Big Woods NW Quadrangle



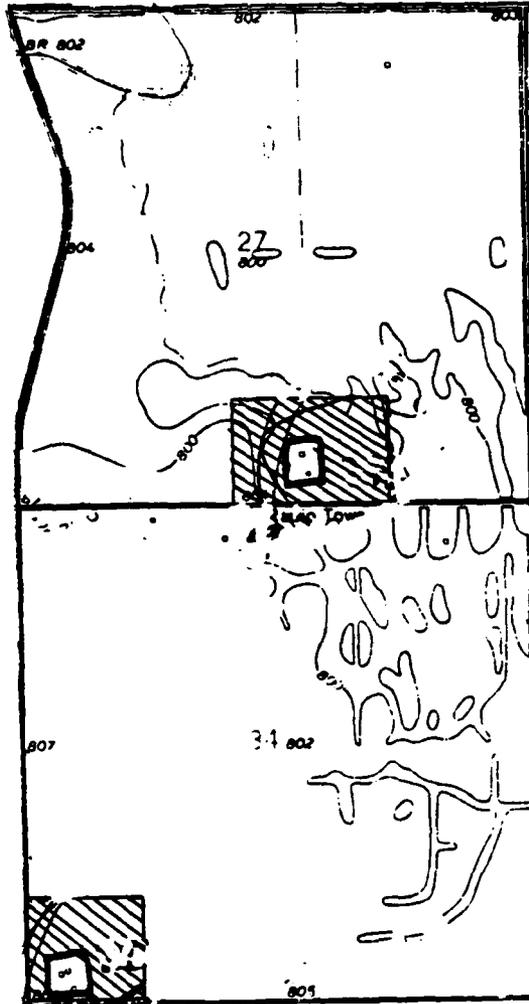
Big Woods NW Quadrangle



Big Woods NW Quadrangle



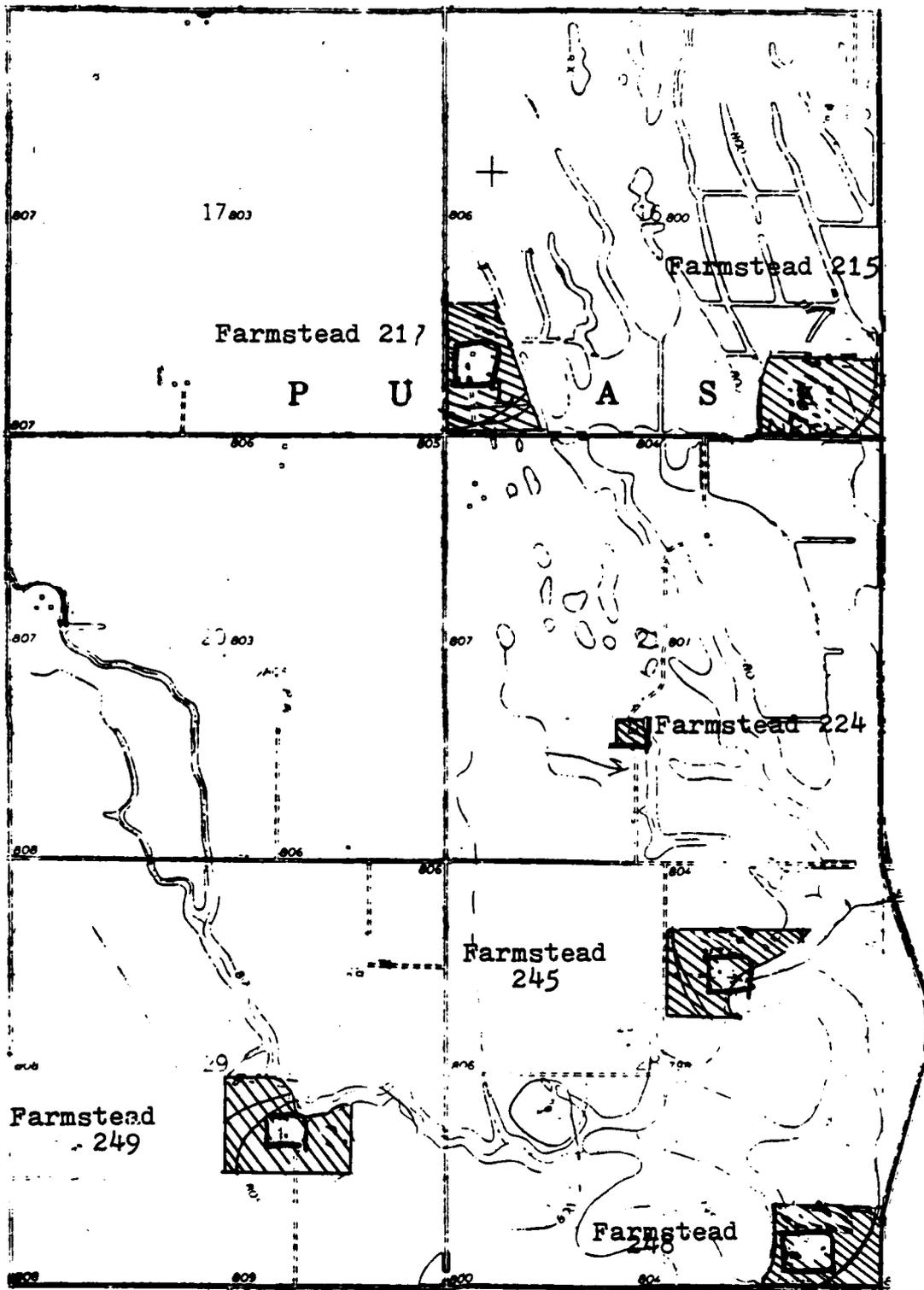
Big Woods SW Quadrangle



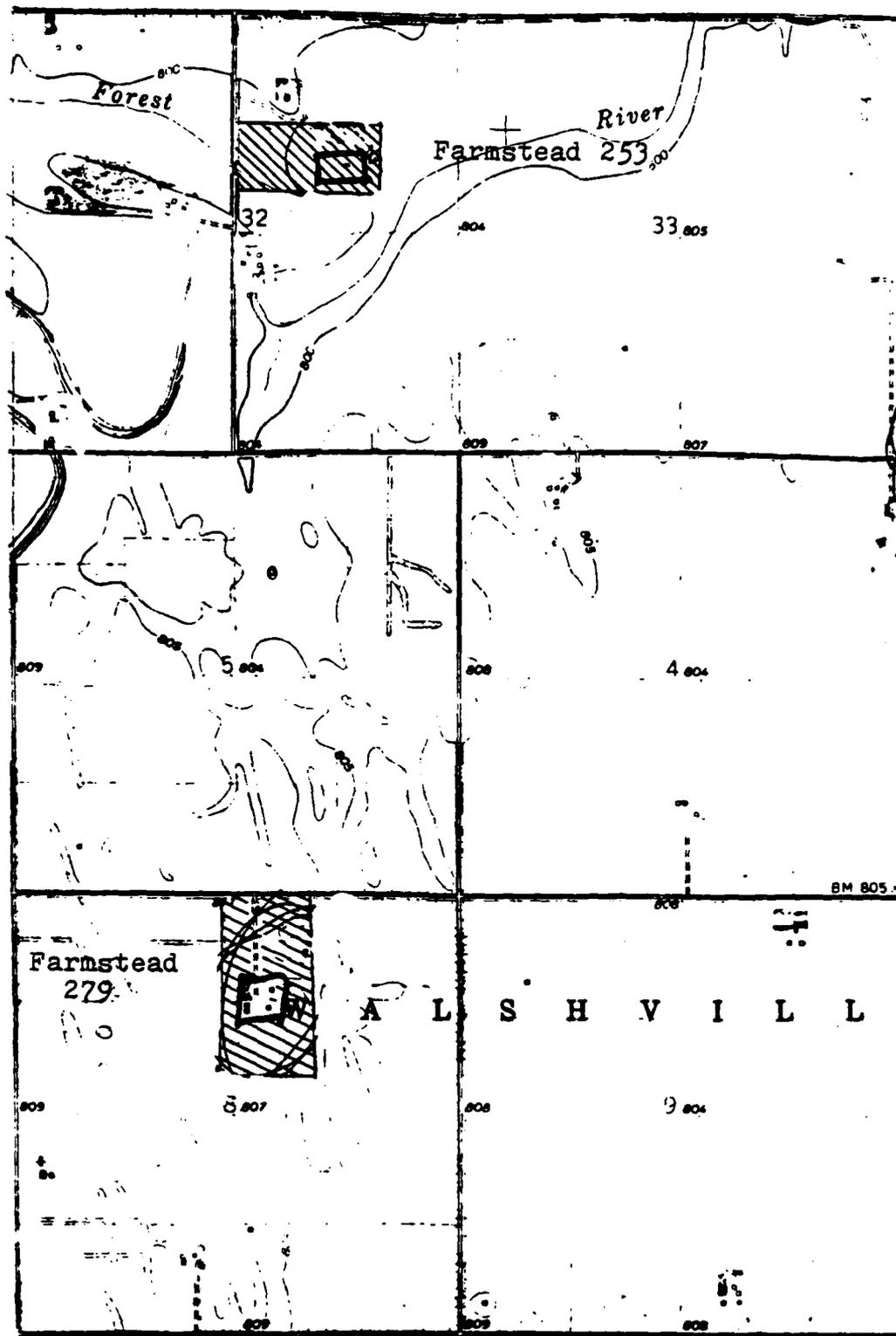
Farmstead
242

Farmstead
258

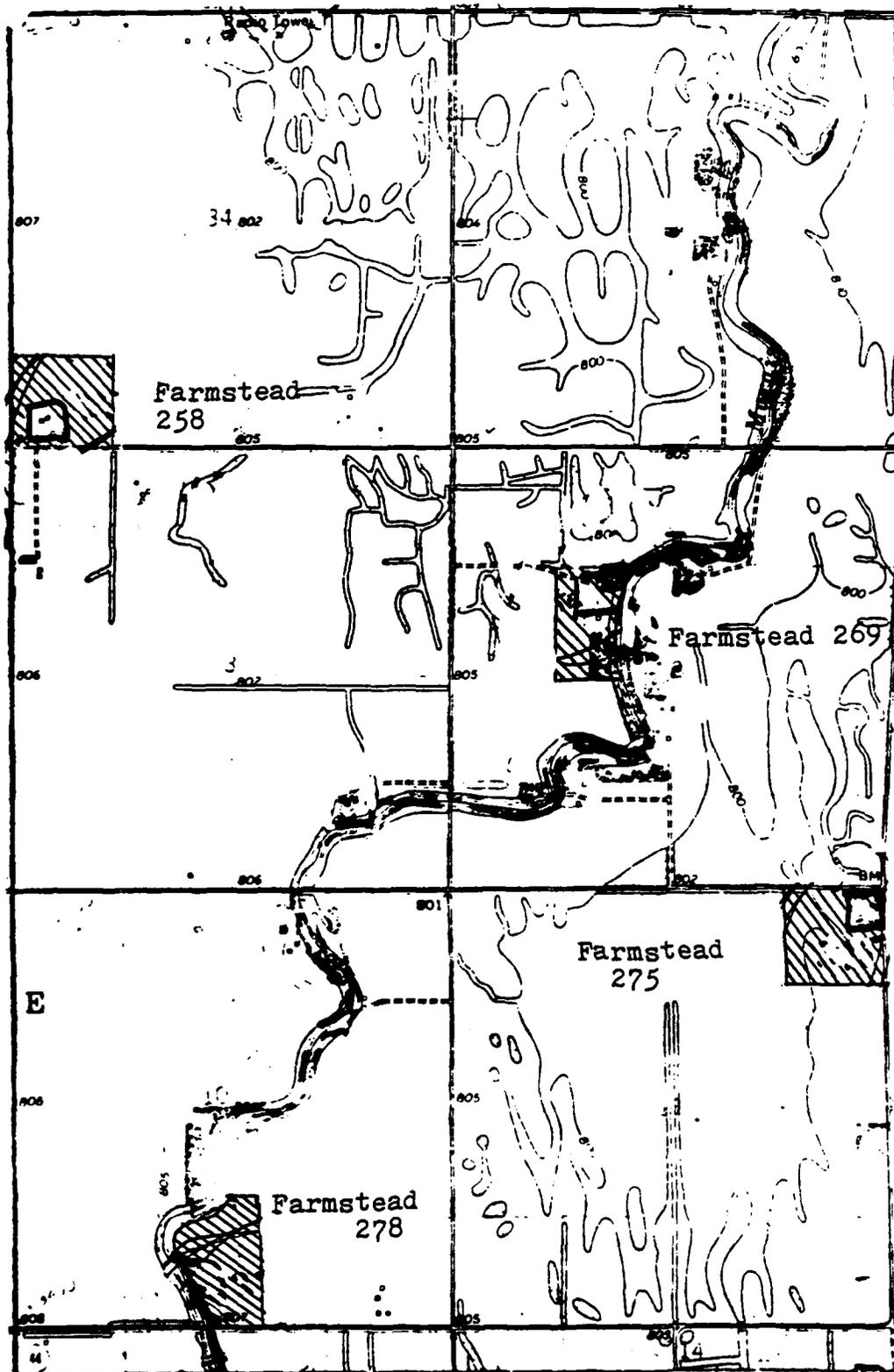
Big Woods SW Quadrangle



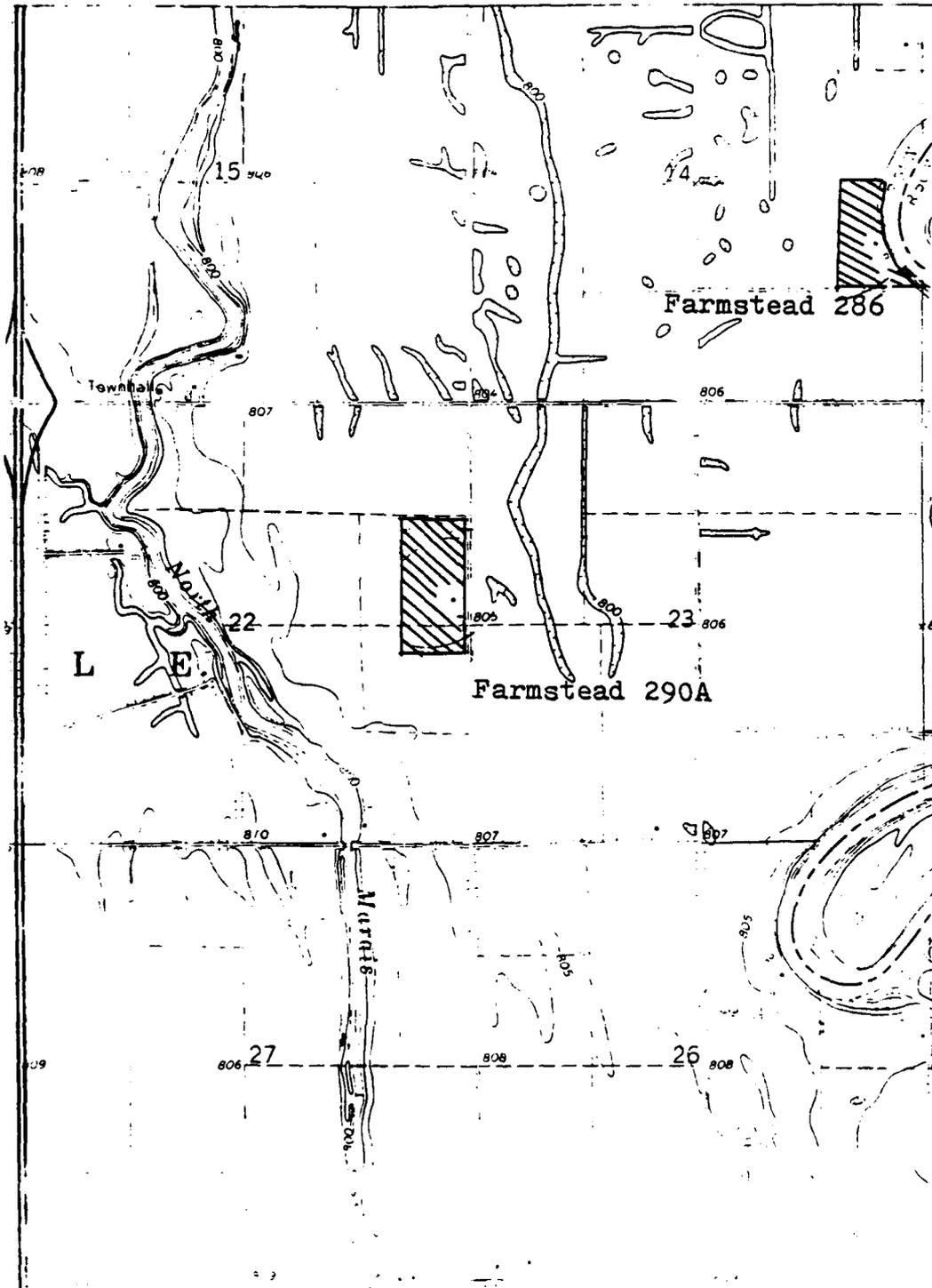
Big Woods SW Quadrangle



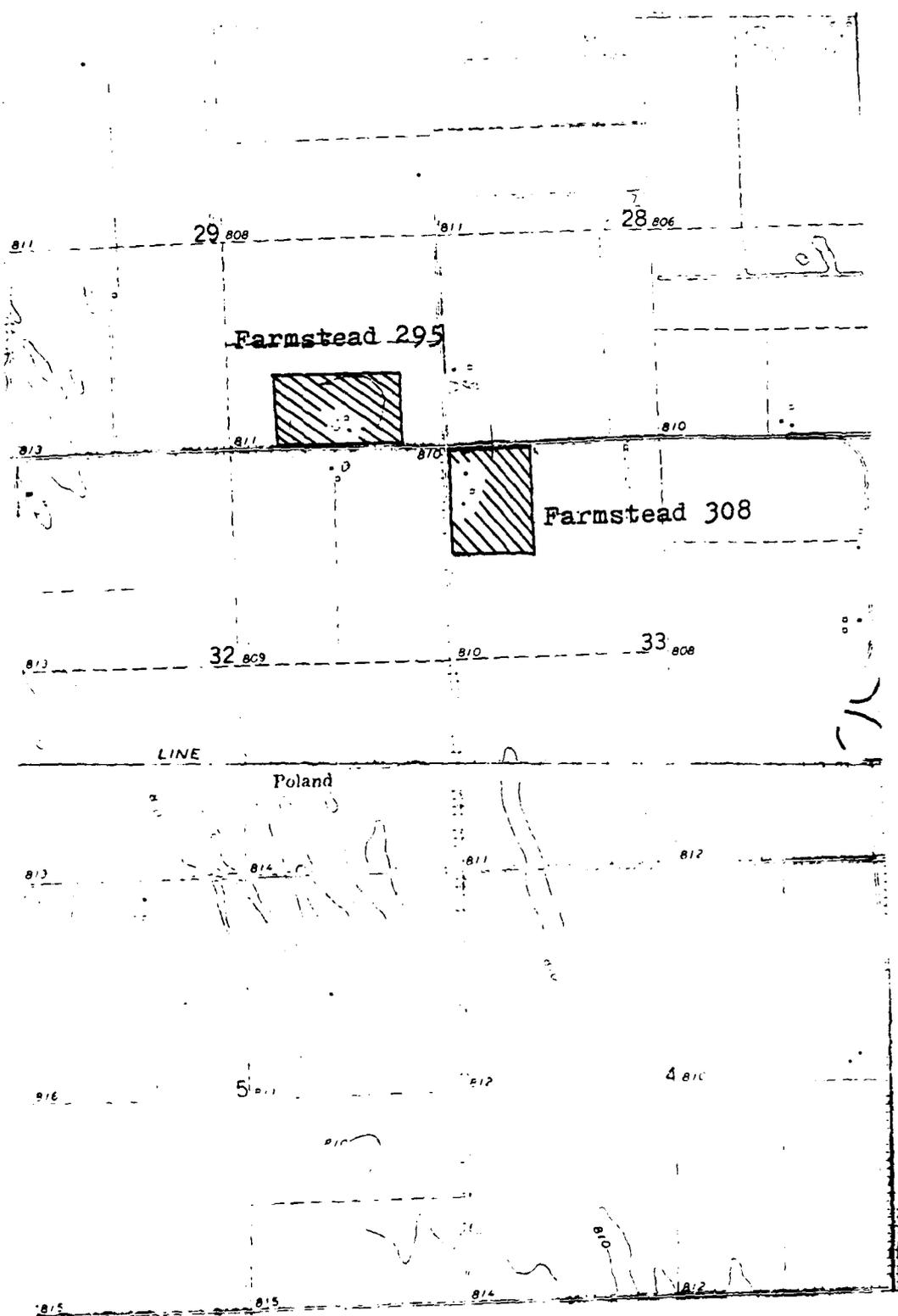
Big Woods SW Quadrangle



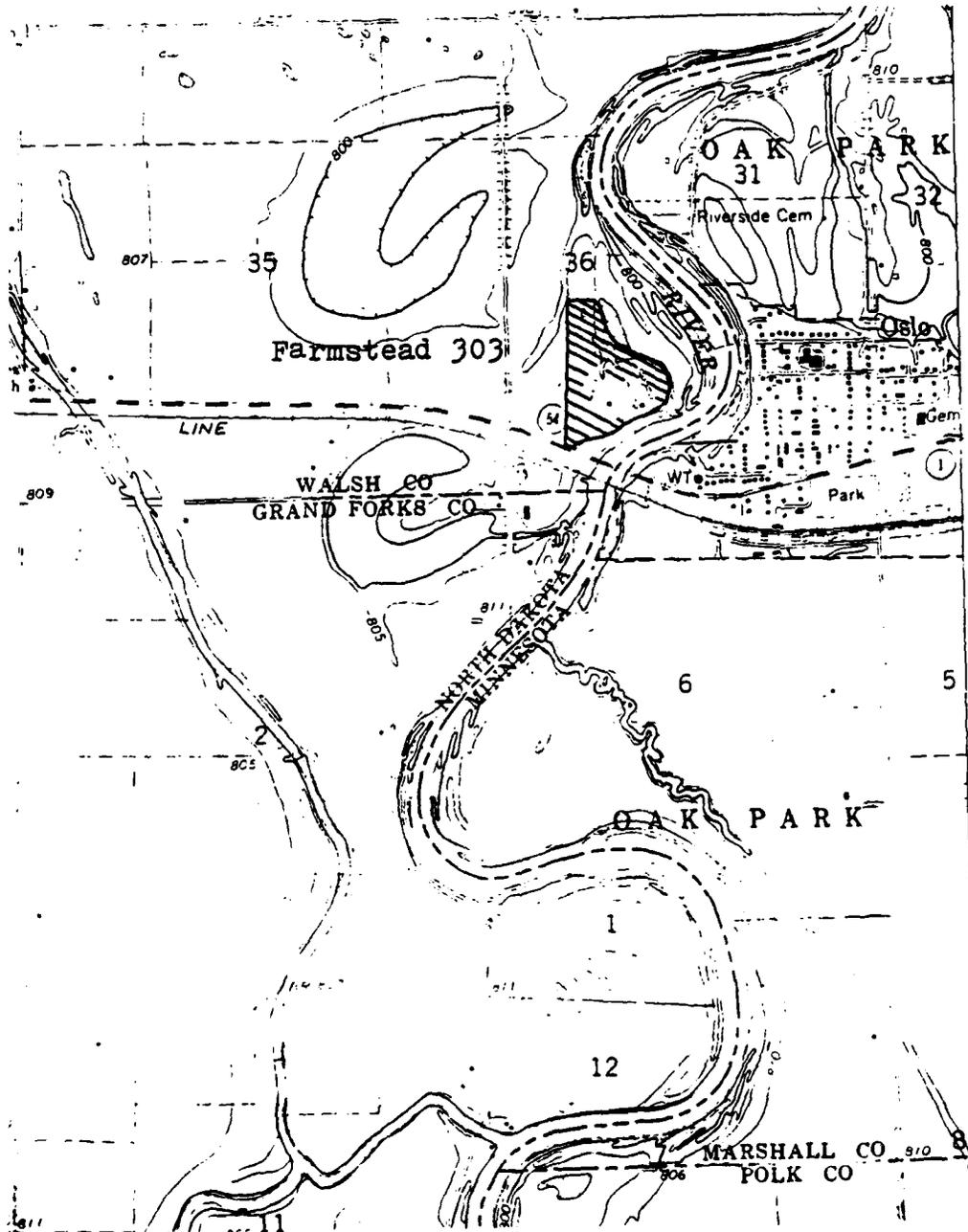
Big Woods SW Quadrangle



Oslo Quadrangle



Oslo Quadrangle



Oslo Quadrangle

END

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